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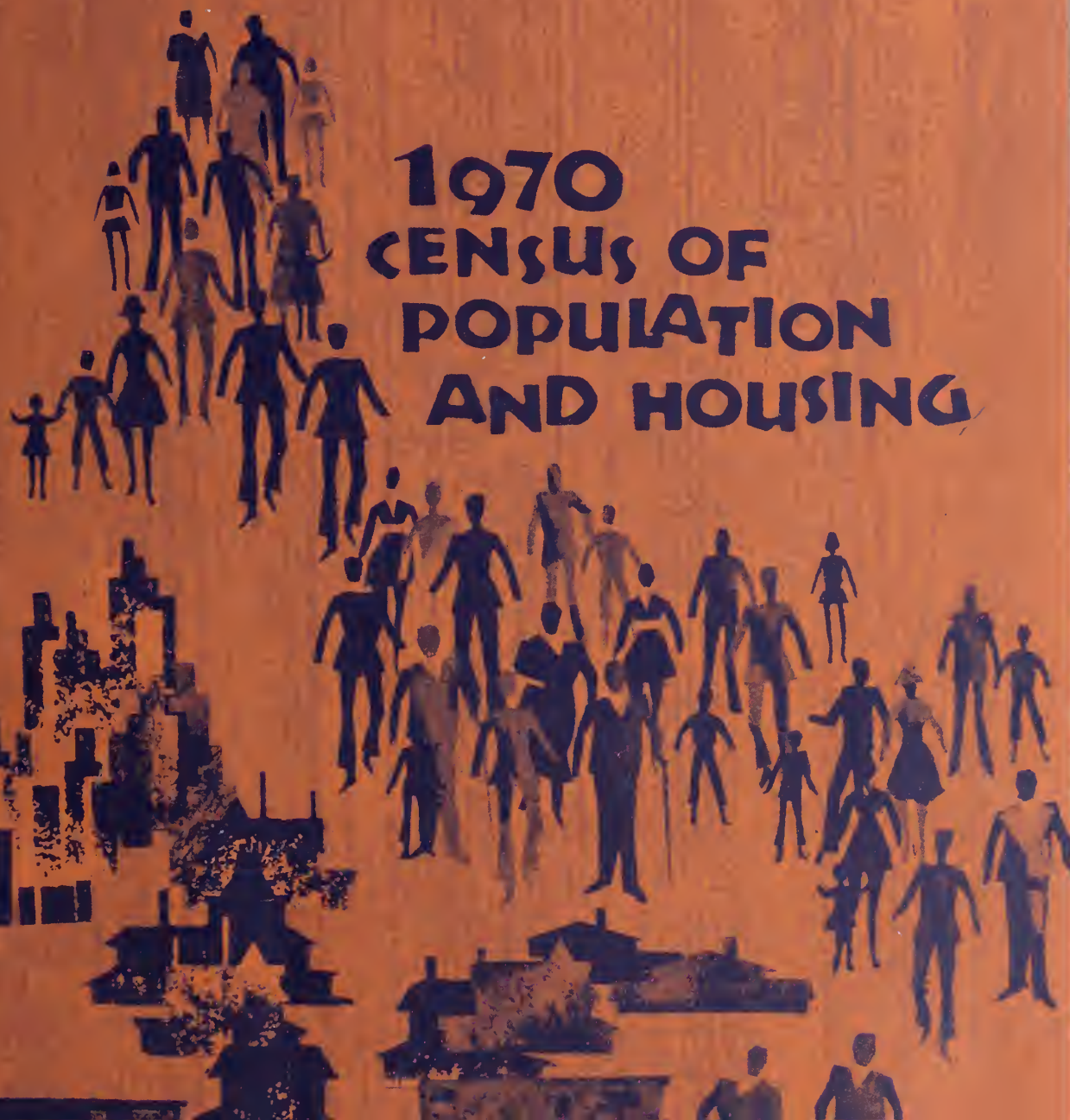
The Quality of Residential Geographic Coding

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Standards and Methodology

David L. Kaplan, 1970 Census Coordinator

STATISTICAL METHODS DIVISION

Morton Boisen, Chief

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1970 CENSUS OF POPULATION AND HOUSING

Evaluation and Research Program

The Quality of Residential Geographic Coding

Issued January 1973

Preface

This is one of a series of reports on results from the Evaluation and Research Program of the 1970 Census of Population and Housing. The program is comprised of a variety of studies, each designed to produce data on the accuracy of selected subject matter or on the effectiveness of specific methodological features of the census taking process. The major findings and results from these studies will be published in the PHC(E) series of reports, as significant phases of the various studies are completed.

This report presents data on the accuracy of residential geographic coding in the 1970 Census. Estimates have been obtained of the error rates for three levels of geographic coding: 1. block; 2. tract; and 3. minor civil division, census county division, or place. For each level of coding error rates are shown separately for areas to which different geographic coding procedures applied.

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THE QUALITY OF RESIDENTIAL GEOGRAPHIC CODING

Introduction

This report presents data on the accuracy of geographic coding in the 1970 Census. The data apply to housing units in areas of the United States for which block statistics are published. Almost two-thirds of all housing units in the United States are within these blocked areas.

Estimates have been obtained of the error rates for three levels of geographic coding: block; tract; and minor civil division (MCD), census county division (CCD), or place. For each level of coding the error rate is analyzed by areas to which different census taking procedures and, consequently, different methods of geographic coding applied.

Following is a description of how geographic codes were assigned to housing units in the 1970 Census:

1. Tape Address Register (TAR) areas were mail census areas for which the census mailing list consisted of a commercial mailing list updated by three post office checks. For housing units in TAR areas the Address Coding Guide (ACG) was developed to assign tract, block, enumeration district (ED), and area¹ codes. The ACG consisted of a listing of streets separated into segments defined by odd and even house number ranges, for which the appropriate geographic codes were given. A housing unit was coded to tract, block, ED, and area by the computer, which located in the ACG the house number range in which the address of the unit fell, then assigned the geographic codes given by the ACG for that house number range.

About 85 percent of all units in TAR areas were computer-coded using the ACG. Housing units assigned geographic codes by other means included units on the mailing list but not codable by the ACG, in addition to units added either immediately prior to or during the census by the last two post office checks or by enumerators.

The addresses of mailing list units not codable by the ACG were affixed to Yellow Cards (Tract and Block Follow-Up Cards--Forms D-180, see app. A) and forwarded to the field staff, who determined the tract and block codes. The Yellow Card units were then added to the appropriate ED, for which MCD, CCD, or place codes had already been established.

Housing units added by the last two post office checks were assigned tract, block, and ED codes by field staff in the office where it was possible to use the Block

Header Record (a slightly modified version of the ACG). Those units not codable by the Block Header Record were visited by field staff, who coded them to tract and block. They were then added to the appropriate ED, for which MCD, CCD, or place codes had already been established. Housing units added by enumerators (usually additional apartments found at a street address already on the mailing list) were assigned the same geographic codes as the original listings for the street address.

2. Prelist areas were mail census areas for which the mailing list was generated by a listing procedure. Housing units in these areas were assigned block numbers from maps by enumerators at the time of listing. The ED in which a unit was listed determined the tract and MCD, CCD, or place codes.

Housing units added as a result of the post office check with street name and house number addresses were coded to tract and block using the Block Header Record whenever possible, then added to the appropriate ED, for which MCD, CCD, or place codes had already been established. Those units added by the post office check which were not codable by the Block Header Record were generally added to the ED indicated by the post office as the ED of a nearby household. Block numbers for such units were occasionally assigned during enumeration; however, the majority had block numbers imputed during the computer tabulation procedures.

3. Conventional census areas were areas where the list-enumerate procedure was used. In these areas enumerators assigned block numbers from maps to housing units during the census enumeration. The ED in which a unit was listed determined the tract and MCD, CCD, or place codes.

Results

1. An estimated 8.4 percent of all units in blocked areas were coded to the wrong block.

The observed block coding error rate for units in TAR areas, which comprise about three fourths of all units in blocked areas, is 7.7 percent (see column (c) of table 1). At the 2σ level the TAR error rate is significantly lower than the block coding error rate of 12.7 percent for Prelist areas. The TAR error rate does not, however, differ significantly at the 2σ level from the 9.4 percent block coding error rate for Conventional areas.

It should be noted that the block coding error rate for TAR areas is based on samples of TAR units (mailing list addresses which were assigned geographic codes by the computer according to the ACG) and Yellow Card units (mailing list addresses

¹The area code is a 3-digit number assigned to MCD's or CCD's alphabetically within county and to places alphabetically within MCD or CCD.

which were not codable by the ACG).² No estimates of coding error were obtained for housing units which were added either immediately prior to or during the census by the last two post office checks or by enumerators, although the coding error rates for such units might be expected to approximate those for units which were computer-coded using the ACG. Even if as many as 15 percent of these added units were coded to the wrong block, the total block coding error in TAR areas would be only about 0.5 percentage points greater, or 8.2 percent.

Table A presents the relative contributions to the total geographic coding error of the various types of census coding procedures. Block coding errors for Yellow Card and Prelist units appear to represent disproportionately large parts of the total block coding error. The following factors might have contributed to the higher error rates for Yellow Card units:

-- Some Yellow Card units were not assigned tract and block codes by field check but instead were office coded, using reference materials such as city directories. The quality of available reference materials and their applicability to the addresses of Yellow Card units tended to vary considerably.

-- A more serious problem is the fact that time limitations prevented the field staff from field checking some Yellow Card units for which no reference materials existed. Such units were assigned tract and block codes deemed "reasonable" by the field staff.

For Prelist areas, certain other conditions might account for the lower coding quality:

-- Prelist units were frequently in suburban areas with highly irregular block patterns. Enumerators might have had more difficulty coding units to block in such areas.

-- In Prelist areas block coding was done by the listing enumerator, who occasionally assigned the block number of the mailbox location rather than the actual location of the unit. Such errors could have resulted from the enumerator's having merely to list a mailing address instead of locating the unit to conduct an interview.

-- As part of the census procedure, many units added by the post office check in blocked Prelist areas were assigned to ED's but never coded to block. When such a unit was tabulated, a block number was imputed from among the possible blocks in the ED to which the unit had been added. If the imputed block number was incorrect, this was counted as a block coding error.

Table A. Contributions of Different Census Coding Procedures to Total Block, Tract, and MCD, CCD, or Place Coding Errors

Coding procedure	Percent of units in blocked areas	Percent of total errors		
		Block	Tract	MCD/CCD/place
Total, all blocked areas.....	100.0	100.0	100.0	100.0
TAR units codable by the ACG.....	70.3	58.1	70.5	67.7
Yellow Card units....	5.3	11.1	20.3	15.9
Enumerator-coded units.....	24.4	30.8	9.2	16.4
Prelist areas.....	8.2	12.5	6.0	12.1
Conventional areas.	16.2	18.3	3.2	4.3

Focusing on TAR areas, the contrast in coding accuracy between units codable by the ACG and Yellow Card units is particularly striking. Table B presents the comparative coding error rates for addresses coded by the ACG and for Yellow Card addresses.

Table B. Estimated Block, Tract, and MCD, CCD, or Place Coding Error Rates for TAR Units Codable by the ACG and for Yellow Card Units Inside and Outside Central Cities of SMSA's

	(Data shown as percents of units)						
	All units			Inside central cities		Outside central cities	
	Block	Tract	MCD/CCD/Place ¹	Block	Tract	Block	Tract
TAR units codable by the ACG....	6.9	1.8	0.7	5.1	1.5	9.5	2.3
Yellow Card units.....	17.5	6.9	2.2	19.3	10.0	16.5	5.3

¹Breakdowns by inside and outside central cities are not given for MCD, CCD, or place errors because no errors were observed for sample units either actually located or erroneously tabulated as inside central cities or SMSA's.

2. Block coding for units in suburban areas is generally considerably less accurate than for units within the central cities of SMSA's.

²The majority of the Yellow Card units had house numbers which were not within any of the ranges listed in the ACG. Some had less conventional addresses (e.g. Fourth and Elm) which did not lend themselves to the technique of coding used by the ACG. Other units were identified by occupants' names and/or location descriptions.

An estimated 6.1 percent of the units inside central cities were coded to the wrong block, while 10.9 percent of the units outside central cities were miscoded (see table C). This difference is significant at the 2 σ level.

Table C. Estimated Block Coding Error Rates for Units in SMSA's Inside and Outside Central Cities by Type of Census Area

(Data shown as percents of units)

	All units in SMSA's		Inside central cities		Outside central cities	
	Error rate	σ	Error rate	σ	Error rate	σ
Total.....	8.3	0.3	6.1	0.4	10.9	0.5
TAR areas....	7.7	0.4	5.8	0.4	10.4	0.6
Prelist areas	14.2	0.6	(¹)	(¹)	14.2	0.6
Conventional areas.....	8.6	0.9	8.3	0.9	10.2	2.2

¹There were too few sample units in Prelist areas inside central cities to yield a reliable estimate of the error rate.

3. The quality of block coding varies greatly from place to place.

Column (b) of table 2 presents the block coding error rates for TAR areas by the number of units codable by the ACG. Although the observed error rates vary for the size ranges shown, differences among the individual strata or between one stratum and the other six combined are not generally significant at the 2 σ level.

More important than the variation in coding error rates among different size ranges of TAR's is the variation among individual TAR areas. Although the sample is too small for most areas to provide much reliability, some observations are interesting. For example, the block coding error rates for the five TAR areas in stratum 1 are:

Area	Error rate (%)	σ (%)
Los Angeles, Calif.	14.6	1.8
Philadelphia, Pa.	9.3	2.0
New York, N.Y.	8.9	1.2
Chicago, Ill.	4.6	1.2
Detroit, Mich.	4.3	1.4

Within other strata the ranges of error rates are at least as large. The worst block coding error rate observed is 27.6 percent (with σ = 5.9 percent) in San Jose, but a total of 4 TAR areas had coding error rates greater than 15 percent and an additional 14 areas had error rates from 10 percent to 15 percent.

In Prelist areas the effect of any single sample area on the estimate of block coding error for urbanized areas is relatively small; those areas with the greatest numbers of sample cases generally have coding error rates very close to the average rate observed in

areas with fewer sample cases. However, there is an obvious concentration of errors among certain areas with relatively small numbers of sample cases (15 or fewer sample units). For example, areas including about 12 percent of the sample units account for 31 percent of the observed block coding errors in urbanized areas. In contract block areas³, two areas with 9 percent of the sample units account for 28 percent of the block coding error cases.

Similar concentrations of block coding error cases were observed for Conventional areas. In urbanized areas, about 32 percent of the error cases fall in areas with only 16 percent of the sample units. In contract block areas one sample area has a block coding error rate of 23.3 percent (based on 133 units in sample); this area alone accounts for about 12 percent of the sample units and 26 percent of the observed error cases in contract block areas.

4. Over one-half of the sample units coded to the wrong block were coded to a neighboring block.

Table D presents the block coding errors by type. It is interesting to note that the distributions of error types are similar for groups of sample units to which different block coding procedures applied.

One type of coding error observed only in TAR areas is coding a unit with the correct block number, but with the tract number for an adjacent tract. Eliminating such errors would reduce the block coding error rate in TAR areas to about 7 percent.

Table D. Types of Block Coding Error by Type of Census Area

(Data shown as percents of block coding errors)

Error category	TAR areas		Prelist areas	Conventional areas
	Units codable by the ACG	Yellow Card units		
Total sample units coded to the wrong block.....	100.0	100.0	100.0	100.0
Address coded to neighboring block....	54.4	43.7	60.6	70.7
Address across street from assigned block....	16.4	22.6	38.2	46.5
Address down one block from assigned block.....	34.3	18.3	15.5	18.8
Address diagonally opposite assigned block.....	3.7	2.8	6.9	5.4
Miscellaneous errors..	45.6	56.3	39.4	29.3
Source unclear.....	37.8	43.7	39.4	29.3
Probably due to clerical error ¹	7.8	12.6		

¹The block number is correct for these cases, but the assigned tract number is for an adjacent tract.

³Contract block areas are those areas where local governments have contracted with the Bureau of the Census to obtain census statistics tabulated at the block level.

5. Block coding in the 1970 Census is of lower quality than in 1960.

In 1960 the block coding error rate was about 5 percent. This estimate refers to block coding in cities with 50,000 or more persons in 1960, which account for virtually all of the block statistics published for the 1960 Census. In 1970 block statistics were published and evaluated for considerably more areas than in 1960. However, for those areas which were also block coded in the 1960 the block coding error rate in the 1970 Census is estimated to be 6.3 percent. The difference between the 1960 and 1970 error rates is significant at the 2σ level.

A caveat regarding the 1960 estimate is necessary. Some block codes were imputed in 1960, and it was impossible to ascertain the imputed block numbers for certain sample units during the evaluation of 1960 block coding. Consequently, a range of error was estimated. Assuming that all block number imputations were correct the 1960 block coding error rate was 3.7 percent. Assuming that no block number imputations were correct the error rate was 6 percent. Since neither of these assumptions was believed likely to be true, for purposes of comparison we placed the block coding error at 5 percent.⁴

Table E. Types of Tract Coding Error by Type of Census Area

(Data shown as percents of tract coding errors)

Error category	TAR areas		Prelist areas	Conventional areas ¹
	Units codable by the ACG	Yellow Card units		
Total sample units coded to the wrong tract and block.....	100.0	100.0	100.0	100.0
Address coded to neighboring block....	32.6	21.4	27.8	22.2
Address across street from assigned tract and block.....	4.3	7.1	11.1	-
Address down one block from assigned tract and block....	26.1	10.7	13.9	11.1
Address diagonally opposite assigned tract and block....	2.2	3.6	2.8	11.1
Address coded with correct block number but to an adjacent tract.....	29.3	32.2	-	-
Miscellaneous errors..	38.1	46.4	72.2	77.8

¹The figures shown for Conventional areas are based on only nine observed tract coding errors; the distribution is therefore unreliable.

⁴Internal memorandum to Walter M. Perkins from Lawrence T. Love dated June 21, 1968.

6. Over one-fifth of the units coded to the wrong block were coded to the wrong tract as well.

The estimated tract coding error rate for all units in blocked areas is 1.8 percent (see column (e) of table 1). The level of error in TAR areas, 2.2 percent, is significantly greater than the error rates of 1.3 percent in Prelist areas and 0.4 percent in Conventional areas.

Tract coding errors by type are shown in table E. For TAR, Prelist, and Conventional areas combined, sample units coded to the wrong tract and block were coded to neighboring blocks only about 30 percent of the time. In TAR areas the type of clerical error described earlier, i.e. transcribing the tract number of an adjacent tract in combination with the correct block number, is an important part of the total tract coding error. Were such errors to be eliminated, the tract coding error rate in TAR areas would decline from 2.2 to 1.5 percent.

7. Tract and block coding in non-FOSDIC TAR areas is of lower quality than tract and block coding in TAR areas coded with the FOSDIC coding worksheet.

Most of the ACG's in the United States were developed using the Geographic Coding Worksheet (Form GEO-70-1, see app. B), which is FOSDIC readable. This worksheet established a progression from intersection to intersection along the street being coded, separating the street into segments for which the odd and even address ranges and their corresponding tract and block codes were then established. The ACG's for several areas, however, were developed using other means.⁵ Generally, the technique used in these non-FOSDIC areas was to treat each block as a unit, establishing for it the tract and block codes and the address ranges for all of its sides.

Coding error rates in non-FOSDIC areas are consistently higher than those in FOSDIC areas (see table F). It is uncertain whether these differences are due to the non-FOSDIC coding technique, since the areas where this technique was used tend to differ in other respects as well. For example, the non-FOSDIC areas in California have high coding error rates, but also generally tend to have large amounts of nonrectangular blockwork even within the central cities. We also observe that the tract and block coding error rates for the non-FOSDIC cities of New York and Philadelphia are not significantly higher than those of the central cities in FOSDIC areas. This indicates that the quality of geographic coding may be appreciably affected by the type of area being coded or the quality of source materials available, as well as by the coding technique employed.

⁵The areas in sample coded by other means are the cities of New York, N.Y. and Philadelphia, Pa. (both coded in Jeffersonville by Census Bureau staff); the city of Flint, Mich.; the SMSA's of Los Angeles, Calif., San Francisco, Calif., Anaheim-Santa Ana-Garden Grove, Calif., San Jose, Calif., San Bernardino - Riverside - Ontario Calif., Newark, N.J., Paterson-Clifton-Passaic, N.J., Jersey City, N.J.; the Chicago, Ill. SMSA outside the city; the New York, N.Y. SMSA outside the city; St. Louis, Mo.; and Middlesex Co., N.J. Non-FOSDIC areas not in sample are the SMSA's of Oxnard-Ventura, Calif. and Vallejo-Napa, Calif.

Table F. Estimated Block and Tract Coding Error Rates for TAR Units Codable by the ACG Inside and Outside Central Cities of SMSA's by FOSDIC Areas and non-FOSDIC Areas

(Data shown as percents of units. The Detroit, Mich. and Pittsburgh, Pa. SMSA's as well as the portion of the Philadelphia, Pa. SMSA outside the central city are excluded from this comparison because they are not properly classified as either FOSDIC or non-FOSDIC)

	All TAR units codable by the ACG		Inside central cities		Outside central cities	
	Block	Tract	Block	Tract	Block	Tract
FOSDIC.....	5.5	1.4	4.3	1.2	8.0	1.6
Non-FOSDIC areas.....	9.5	2.5	7.3	2.1	12.1	3.0

8. The final block and tract coding error rates in TAR areas represent a slight improvement over the levels of error existing prior to corrections made as part of the tabulation of data.

The geographic coding error rates for TAR areas discussed earlier in this report refer to the levels of error in the tabulated census data. Estimates have also been obtained of block and tract coding errors in TAR areas prior to coding corrections made during the tabulation procedures. For TAR addresses codable by the ACG these were coding errors in the ACG at the time of ED structuring, prior to any census field operations. For Yellow Card addresses these were coding errors made during the census field operations. Not included in these preliminary error rates were errors and omissions made by enumerators and editors while completing the census questionnaires.

All of the observed coding corrections were made for TAR units codable by the ACG rather than for Yellow Card units. Of the block coding corrections made, almost three-fourths of the cases had been block 999's.⁶ A third of the tract corrections involved cases which had been block 999's and had incorrect tract codes as well. The remaining tract corrections generally involved inserting a decimal part in the final tract code which had been missing in the ACG (e.g. changing the ACG tract code of 100 to a final tract code of 100.02).

⁶A unit was initially coded with the pseudo-block number 999 when the appropriate address range was in the ACG, but there was some inconsistency in the set of codes for the address. For example, the assigned tract code might have been an impossible code for the place to which the address is coded. Units initially coded to block 999 were to be assigned corrected block codes during the census tabulations.

Table G. Estimated Preliminary and Final Block and Tract Coding Error Rates for TAR Units Codable by the ACG and Yellow Card Units Inside and Outside Central Cities of SMSA's

(Data shown as percents of units)

Rate	All TAR units codable by the ACG and Yellow Card units		Inside central cities		Outside central cities	
	Block	Tract	Block	Tract	Block	Tract
Preliminary error rate.	8.7	2.7	6.5	2.1	11.7	3.4
Final error rate.....	7.7	2.2	5.8	1.9	10.4	2.6

9. An estimated 0.7 percent of all units in blocked areas were finally tabulated in the wrong MCD, CCD, or place.

About half of the observed error cases were coded to the wrong MCD or CCD; the other half were coded to the correct MCD or CCD but to the wrong place within the MCD or CCD.

The MCD/CCD/place coding error rate in TAR areas is 0.8 percent (see column (g) of table 1). There are two components to this error. First, one group of sample units was coded to the wrong tract and/or block and, ultimately, to the wrong MCD, CCD, or place. These cases account for about three-fourths of the total MCD/CCD/place error observed in TAR areas. A second group of sample units was assigned the correct tract and block codes, but the MCD, CCD, or place code was wrong.

The estimated MCD/CCD/place coding error rate in Prelist areas is 1.1 percent; for Conventional areas the figure is 0.2 percent. Virtually all of the observed MCD/CCD/place coding errors in these areas coincided with tract and/or block coding errors.

In Prelist areas, units added by the post office check accounted for less than 10 percent of the total sample but included about half of the sample cases involving MCD/CCD/place coding errors. The level of coding error for such added units had little effect on the overall quality of MCD/CCD/place coding in the 1970 Census, since housing units in blocked Prelist areas represented a relatively small proportion of the total. However, a high coding error rate for added units in Prelist areas could have serious implications for future censuses if it is decided to extend the Prelist procedure.

Methodology

1. Tape Address Register (TAR) Areas

A systematic sample of 5,057 TAR units codable by the ACG was selected from 75 mail census areas, of which 74 areas were SMSA's. All mail areas with at least 240,000 TAR units codable by the ACG (a total of 35 areas) were represented in the sample. In addition, the sample included units from 40 smaller mail areas of the remaining 111 areas. The Yellow Card sample consisted of 406 units in the same 75 mail areas.

The field phase of the evaluation was performed for the most part by personnel in census district offices. Two persons, a field coder and a reconciler, were needed for each district office in sample areas. Each sample unit was visited by the field coder, who provided a location description for the unit by completing the following statement on the Geographic Coding Address Card (Form D-840):

1. The last intersecting street I passed was _____.
2. The unit is on my ☐ right ☐ left.
3. The next intersecting street is _____.

The field coder then used this description to locate the site of each unit on the tract and block map and independently code the unit to tract and block. The reconciler compared these codes to the census codes. A map examination was done for all difference cases. In some instances it was clear that the coding differences were due to the field coder's error in assigning the tract and block numbers; such differences were eliminated. The reconciler then visited the remaining difference cases in order to determine the proper codes.

Preliminary tract and block coding error rates were obtained upon completion of the work described above. To determine the effect of corrections made as part of the tabulation of data, all tract and/or block coding error cases as well as a 1 in 10 sample of the nonerror cases were submitted to Geography Branch in Jeffersonville. For these cases the final tract, block, and ED codes were ascertained.

MCD, CCD, and place coding were evaluated by using the correct tract and block codes to locate the site of each unit on the tract and block maps. The MCD or CCD and the place (if any) within the MCD or CCD corresponding to the location of the unit were then determined. In cases where a block was split by an MCD, CCD, or place boundary, either MCD, CCD, or place was considered acceptable for a unit unless it was obvious which one was correct. The census MCD or CCD and place coding was obtained by locating on the Geographic Reference Tape (GRT) the tract, block, and ED to which the unit was finally assigned. The MCD or CCD and place (if any) determined by the map check were compared to the MCD or CCD and place (if any) where the unit was tabulated in the census. Differences were counted as MCD, CCD, or place coding errors.

2. Prelist Areas

A systematic sample of 1,339 ED's was selected from those 113 PSU's in the 235 Area Design⁷ which were blocked Prelist areas. An expected two nonconsecutive serial numbers were preselected from each ED, based on Geography Division's precensus estimates of the number of housing units in each ED. The sampling pattern was extended beyond the expected two serial numbers to allow for ED's where the estimated number of housing units seriously understated the actual number listed. Although sample units in about a hundred ED's were lost when the ED did not have as many listings as even the lower preselected serial number, the final sample size consisting of 2,739 units in 1,238 ED's approximated the expected sample size. Approximately 69 percent of the sample units were within urbanized⁸ areas; the remainder were in contract block areas.

The procedure for the field check in Prelist areas was essentially the same as that in TAR areas. However, while the field coders were generally census district office employees, the reconciliation phase was performed by current survey interviewers and Washington professional staff.

A map check was performed to determine the MCD or CCD and place (if any) for each sample unit. The correct tract and block codes were used to locate the site of the unit on the tract and block maps; the MCD or CCD and place (if any) corresponding to the location of the unit were then ascertained.

The census codes used for comparison with the field check and map check results for a sample unit were the block numbers entered in the address register along with the tract and MCD, CCD, or place for the appropriate ED listed on the punch document (ED Control Listing--Form GEO-70-46B, see app. C).⁹ Since it was recognized that these preliminary codes would not always reflect the final census codes, a check of the Block Diary, Clerical Corrections Listings, and the GRT was performed to verify the final census block, tract, and MCD, CCD, or place for:

- a. All sample units where the results of the field check and/or the map check for MCD/CCD/place differed with one or more of the preliminary census codes, and

⁷The 235 Area Design is a subset of those counties included in the Current Population Survey. For a description of the sample design of the Current Population Survey, see U.S. Bureau of the Census, *The Current Population Survey - A Report on Methodology*, Technical Paper No. 7, U.S. Government Printing Office, Washington, D.C., 1963.

⁸In this report urbanized areas include areas which were blocked because they were potential urbanized areas as well as those which were actually urbanized areas.

⁹Listings on the form GEO-70-46B were the basis for the Geographic Reference Tape.

- b. A 1 in 10 sample of those units where the results of the field check and the map check for MCD/CCD/place agreed with all of the preliminary census codes.

3. Conventional Areas

A systematic sample of 1,295 ED's was selected from those 71 PSU's in the 235 Area Design which were blocked Conventional areas. Using the same procedure as was used in Prelist areas, two nonconsecutive serial numbers were preselected from each sample ED. The final sample size consisted of 2,538 units

in 1,219 ED's. Approximately 55 percent of the sample units were within urbanized areas; the remainder were in contract block areas.

The procedure for the field check in Conventional areas was essentially similar to that in TAR and Prelist areas. However, both the initial field check and the reconciliation were performed by current survey interviewers.

The remaining phases of the evaluation of geographic coding in Conventional areas were conducted in the same manner as the evaluation for Prelist areas.

Table 1. Estimated Block, Tract, and MCD, CCD, or Place Coding Error Rates by Type of Census Area

(Data shown as percents of units in blocked areas. In TAR areas no estimates of block, tract and MCD, CCD, or place coding error rates were obtained for units added by the last two post office checks or by enumerators. In this table the coding error rates for such added units are assumed to be the same as for other units in TAR areas. For Prelist and Conventional area samples two nonconsecutive listings were selected from each sample ED. The intraclass correlation due to this sample selection procedure has not been considered in the computation of standard errors. However, instances of multiple coding errors observed in sample ED's were rare)

Type of area (a)	Number of units in blocked areas (census counts) (b)	Estimated error rates					
		Block (c)	σ (d)	Tract ¹ (e)	σ (f)	MCD/CCD/ Place ² (g)	σ (h)
Total.....	44,648,113	8.4	0.4	1.8	0.2	0.7	0.1
Urbanized areas ³	41,576,076	8.3	0.3	1.9	0.2	0.8	0.1
Contract block areas.....	3,072,037	10.2	1.9	0.5	0.1	0.3	0.1
TAR areas.....	33,761,115	7.7	0.4	2.2	0.2	0.8	0.1
Urbanized areas ³	33,761,115	7.7	0.4	2.2	0.2	0.8	0.1
Prelist areas.....	3,660,935	12.7	0.8	1.3	0.2	1.1	0.2
Urbanized areas ³	2,960,269	14.2	0.6	1.5	0.3	1.3	0.3
Contract block areas.....	700,666	9.4	1.6	0.9	0.3	0.6	0.3
Conventional areas.....	7,226,063	9.4	1.2	0.4	0.1	0.2	0.1
Urbanized areas ³	4,854,692	8.6	0.9	0.4	0.2	0.1	0.1
Contract block areas.....	2,371,371	10.4	2.4	0.4	0.2	0.3	0.1

¹In nontraced contract block areas block numbering areas (land parcels similar to tracts) were established. For such nontraced areas, tract coding error rates given here actually refer to units coded to wrong block numbering areas.

²This error rate includes units coded to the wrong place within the correct MCD or CCD as well as units coded to the wrong MCD or CCD.

³In this table urbanized areas include areas which were blocked because they were potential urbanized areas as well as those which were actually urbanized areas.

Table 2. Estimated Block Coding Error Rates for TAR Units Codable by the ACG and Yellow Card Units by Size of TAR Area

(Data shown as percents of units. Size of TAR area is based on the number of units in the TAR codable by the ACG)

Size of TAR area (a)	All TAR units codable by the ACG and Yellow Card units		Inside central cities of SMSA's		Outside central cities of SMSA's	
	Error rate (b)	σ (c)	Error rate (d)	σ (e)	Error rate (f)	σ (g)
All TAR areas combined.....	7.7	0.4	5.8	0.4	10.4	0.6
1. Over 1,000,000.....	8.9	0.7	6.5	0.8	12.3	1.2
2. 550,000 to 999,999.....	7.7	1.1	7.4	1.7	7.9	1.4
3. 400,000 to 549,999.....	7.6	1.2	5.8	1.5	9.6	2.0
4. 300,000 to 399,999.....	7.9	1.0	5.5	1.1	10.7	1.6
5. 200,000 to 299,999.....	7.5	1.2	4.4	1.2	15.0	2.7
6. 100,000 to 199,999.....	6.4	1.1	5.9	1.1	7.2	1.9
7. Less than 100,000.....	5.8	1.1	4.8	1.1	7.9	2.2

Table 3. Estimated Block Coding Error Rates for TAR Units Codable by the ACG by Size of TAR Area

(Data shown as percents of units. Size of TAR area is based on the number of units in the TAR codable by the ACG)

Size of TAR area (a)	All Tar units codable by the ACG		Inside central cities of SMSA's		Outside central cities of SMSA's	
	Error rate (b)	σ (c)	Error rate (d)	σ (e)	Error rate (f)	σ (g)
All TAR areas combined.....	6.9	0.4	5.1	0.4	9.5	0.7
1. Over 1,000,000.....	7.8	0.7	5.6	0.8	11.1	1.3
2. 550,000 to 999,999.....	7.7	1.1	7.2	1.7	8.0	1.5
3. 400,000 to 549,999.....	6.7	1.2	5.0	1.4	8.6	1.9
4. 300,000 to 399,999.....	7.0	1.0	4.9	1.1	9.8	1.7
5. 200,000 to 299,999.....	7.3	1.3	4.4	1.3	14.8	2.9
6. 100,000 to 199,999.....	5.9	1.1	5.4	1.1	7.0	1.8
7. Less than 100,000.....	4.7	0.9	3.7	0.9	6.7	1.8

Table 4. Estimated Tract Coding Error Rates for TAR Units Codable by the ACG and Yellow Card Units by Size of TAR Area

(Data shown as percents of units. Size of TAR area is based on the number of units in the TAR codable by the ACG)

Size of TAR area (a)	All TAR units codable by the ACG and Yellow Card units		Inside central cities of SMSA's		Outside central cities of SMSA's	
	Error rate (b)	σ (c)	Error rate (d)	σ (e)	Error rate (f)	σ (g)
All TAR areas combined.....	2.2	0.2	1.9	0.2	2.6	0.3
1. Over 1,000,000.....	2.4	0.4	2.2	0.5	2.6	0.6
2. 550,000 to 999,999.....	2.7	0.7	3.0	1.1	2.6	0.8
3. 400,000 to 549,999.....	2.5	0.7	2.1	0.9	3.1	1.1
4. 300,000 to 399,999.....	1.9	0.5	1.4	0.6	2.5	0.8
5. 200,000 to 299,999.....	1.8	0.6	0.9	0.6	3.9	1.4
6. 100,000 to 199,999.....	1.8	0.6	2.0	0.7	1.4	0.8
7. Less than 100,000.....	2.0	0.7	1.6	0.6	2.8	1.2

Table 5. Estimated Tract Coding Error Rates for TAR Units Codable by the ACG by Size of TAR Area

(Data shown as percents of units. Size of TAR area is based on the number of units in the TAR codable by the ACG)

Size of TAR area (a)	All TAR units codable by the ACG		Inside central cities of SMSA's		Outside central cities of SMSA's	
	Error rate (b)	σ (c)	Error rate (d)	σ (e)	Error rate (f)	σ (g)
All TAR areas combined.....	1.8	0.2	1.5	0.2	2.3	0.3
1. Over 1,000,000.....	1.8	0.3	1.6	0.4	2.0	0.6
2. 550,000 to 999,999.....	2.6	0.7	3.1	1.2	2.3	0.8
3. 400,000 to 549,999.....	2.2	0.7	1.7	0.8	2.9	1.2
4. 300,000 to 399,999.....	1.8	0.5	1.2	0.5	2.5	0.9
5. 200,000 to 299,999.....	1.6	0.6	0.7	0.5	3.9	1.5
6. 100,000 to 199,999.....	1.7	0.6	1.8	0.6	1.5	0.9
7. Less than 100,000.....	1.1	0.6	0.9	0.5	1.5	0.9

APPENDIXES

Appendix A

ENUMERATOR'S USE ONLY		IDENTIFICATION	a1.	a2.	a3.	a4.	a5.
Map spot No.		a1. ED No.					
Census tract No.		a2. Type of form					
		a3. Units at address					
		a4. Block No.					
Block No.		a5. Serial No.					
<div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> <div style="border-bottom: 1px solid black; margin-bottom: 5px;"></div> <div style="border-bottom: 1px solid black;"></div>							

FORM D-180
(11-12-68)
D-CT

GPO : 1968 O - 325-890

TRACT AND BLOCK FOLLOW-UP CARD
19th Decennial Census - 1970

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS
USCOMM-DC

Appendix B

GEOGRAPHIC CODING WORKSHEET (HSP-FOSDIC)

FORM GEO 70-1 28:1
1-19-66

1. CITY AND STATE																			
2. STREET DESCRIPTION																			
3.																			
4.																			
5. <i>Make no mark in this space.</i>																			
6.																			
7.																			
8. STREET IDENTIFICATION																			
9. INTERSECTIONS																			
Control	Tract	Zip Code	Street Side	Block Number	Address Range		Tract Sub-Division	Optional											
					Low	High													
<div style="text-align: center;">●</div>	<div style="text-align: center;">■</div>	<div style="text-align: center;">OK as Printed As Previous Cell</div>	<div style="text-align: center;">OK as Prtd. Prev. Cell</div>	<div style="text-align: center;">N S E W C</div>	<div style="text-align: center;">Void</div>	<div style="text-align: center;">OK as Printed</div>	<div style="text-align: center;">OK as Printed</div>	<div style="text-align: center;">●</div>	<div style="text-align: center;">■</div>										
STREET IDENTIFICATION INTERSECTIONS																			
Control	Tract	Zip Code	Street Side	Block Number	Address Range		Tract Sub-Division	Optional											
					Low	High													
<div style="text-align: center;">●</div>	<div style="text-align: center;">■</div>	<div style="text-align: center;">OK as Printed As Previous Cell</div>	<div style="text-align: center;">OK as Prtd. Prev. Cell</div>	<div style="text-align: center;">N S E W C</div>	<div style="text-align: center;">Void</div>	<div style="text-align: center;">OK as Printed</div>	<div style="text-align: center;">OK as Printed</div>	<div style="text-align: center;">■</div>	<div style="text-align: center;">■</div>										
STREET IDENTIFICATION INTERSECTIONS																			
Control	Tract	Zip Code	Street Side	Block Number	Address Range		Tract Sub-Division	Optional											
					Low	High													
<div style="text-align: center;">●</div>	<div style="text-align: center;">■</div>	<div style="text-align: center;">OK as Printed As Previous Cell</div>	<div style="text-align: center;">OK as Prtd. Prev. Cell</div>	<div style="text-align: center;">N S E W C</div>	<div style="text-align: center;">Void</div>	<div style="text-align: center;">OK as Printed</div>	<div style="text-align: center;">OK as Printed</div>	<div style="text-align: center;">■</div>	<div style="text-align: center;">■</div>										
STREET IDENTIFICATION INTERSECTIONS																			
Control	Tract	Zip Code	Street Side	Block Number	Address Range		Tract Sub-Division	Optional											
					Low	High													
<div style="text-align: center;">●</div>	<div style="text-align: center;">■</div>	<div style="text-align: center;">OK as Printed As Previous Cell</div>	<div style="text-align: center;">OK as Prtd. Prev. Cell</div>	<div style="text-align: center;">N S E W C</div>	<div style="text-align: center;">Void</div>	<div style="text-align: center;">OK as Printed</div>	<div style="text-align: center;">OK as Printed</div>	<div style="text-align: center;">■</div>	<div style="text-align: center;">■</div>										

Appendix C

SHEET _____ OF _____ SHEETS

FORM GEO-70-46B (1-16-69) C-D-CT		U.S. DEPARTMENT OF COMMERCE BUREAU OF THE CENSUS		a. District office name and code									
ED CONTROL LISTING 19th Decennial Census - 1970				b. Date shipped		c. Date received		d. Last ED used for this prefix					
e. Name of State		Code		g. Description of area (county)									
f. Name of county		Code (ED prefix)											
Geographic area or other identification (MCD or place name) (1)	Rem. of MCD	ED No. (2)		Footnotes (3)	Special place cross reference (4)	Annex (5)	Cong. district (6)	Ward (7)	Tract (8)	Estimated 1970 housing units (9)	List No. (10)		
Basic	Suf.												
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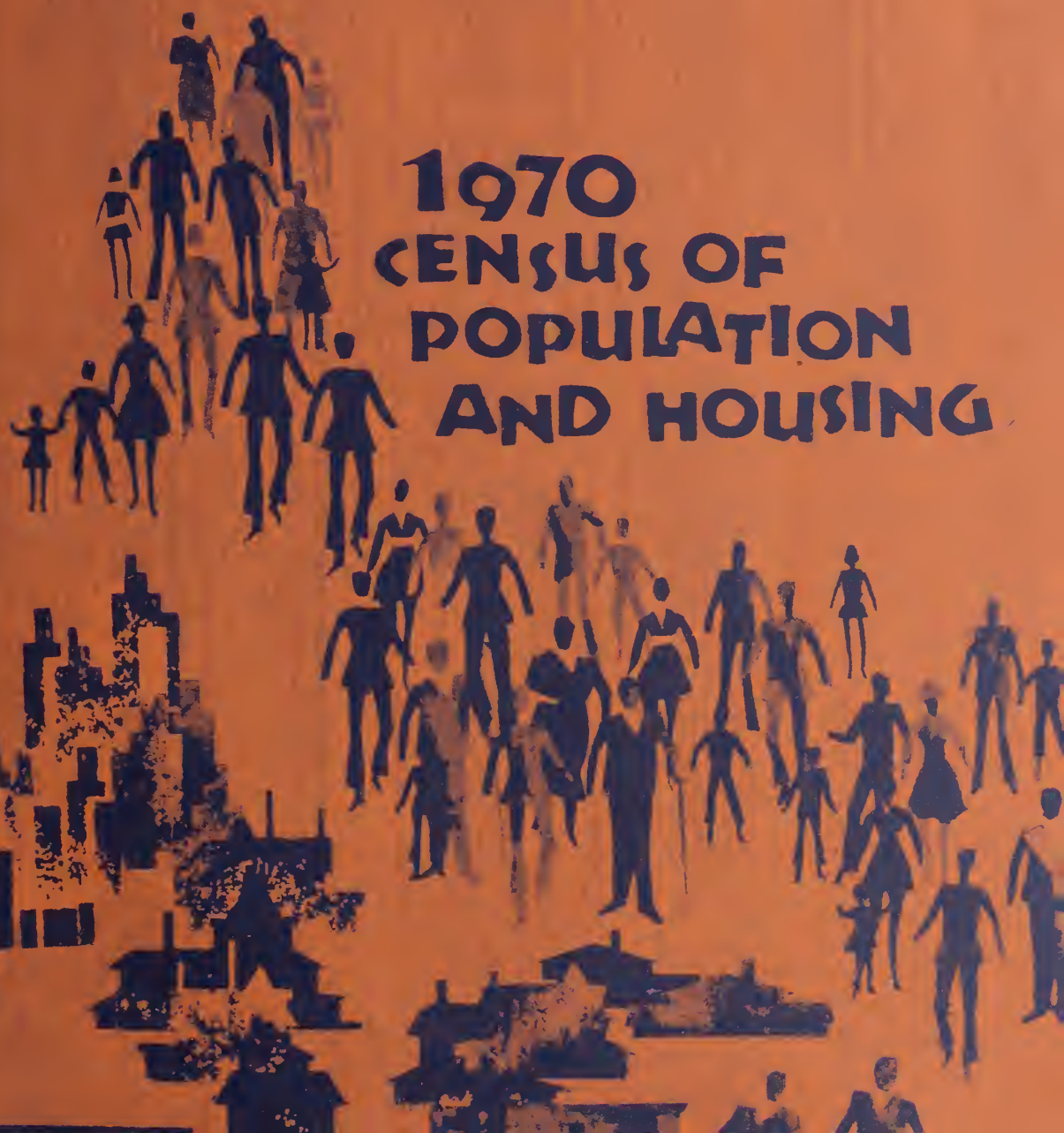
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PHC(E)-2

Evaluation and Research Program

Test of Birth Registration Completeness, 1964 to 1968



1970 CENSUS OF POPULATION AND HOUSING

U.S. DEPARTMENT
OF COMMERCE
Social and Economic
Statistics Administration

U.S. BUREAU OF
THE CENSUS

U. S. DEPARTMENT OF COMMERCE

Frederick B. Dent, Secretary

Social and Economic Statistics Administration

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Joseph Waksberg, Associate Director for Statistical
Standards and Methodology

David L. Kaplan, 1970 Census Coordinator

STATISTICAL METHODS DIVISION

Morton Boisen, Chief

STATISTICAL RESEARCH DIVISION

Thomas B. Jabine, Chief

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A number of persons both in the Bureau of the Census and outside the Bureau participated in this study. Particular acknowledgment is made to the National Center for Health Statistics of the Department of Health, Education, and Welfare and the registrars and personnel in the State and city registration offices without whose cooperation the study could not have been completed. In the Census Bureau the study was

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1970 CENSUS OF POPULATION AND HOUSING

Evaluation and Research Program

**Test of Birth Registration
Completeness
1964 to 1968**

Issued March 1973

Preface

This is one of a series of reports on results from the Evaluation and Research Program of the 1970 Census of Population and Housing. The program is comprised of a variety of studies, each designed to produce data on the accuracy of selected subject matter or on the effectiveness of specific methodological features of the census-taking process. The major findings and results from these studies will be published in the PHC(E) series of reports, as significant phases of the various studies are completed.

This report presents estimates of the completeness of birth registration for the years 1964 to 1968. National estimates are shown for white, for Negroes and other races, and for births occurring in hospitals and out of hospitals. In addition, for each racial group, estimates are shown separately for the four major geographic regions: Northeast, North Central, South, and West.

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I. Introduction and background

Estimates from the nationwide test of birth registration described in this report indicate that birth certificates are on file for over 99 percent of children born during the years 1964 to 1968. The last previous test of birth registration completeness, conducted in 1950, showed a registration rate of about 98 percent. Improvement in the birth registration system has reached a point where, for most purposes, under-registration has ceased to be a practical problem.

The birth registration study was carried out by the U.S. Bureau of the Census with the cooperation of the National Center for Health Statistics (NCHS) of the Department of Health, Education, and Welfare and the registration offices of the States and the District of Columbia, and the independent city registration offices. The primary purpose of the test was to obtain current national estimates of registration completeness by race.

A. Reasons for tests

Birth records are used extensively for many different purposes. For the individual a birth certificate is required for school enrollment, employment, proof of citizenship, qualifying for pensions or social security, etc. For the health statistician, information provided by birth records plays a vital role in programs dealing with aspects of infant and maternal mortality. The demographer uses birth statistics to measure and analyze population changes and to project population growth. The completeness with which births are registered is an important factor in how well the registration system can meet the many different demands made on it.

The most important reason for the current test was to improve the estimates of births used in preparing independent estimates of population for evaluating the coverage of the population in the 1970 census.

B. Previous tests of birth registration

Investigation of birth registration completeness has received considerable attention in the United States since early in the 20th century. Early attempts by local areas to estimate the extent of under-registration of births for States and local areas involved comparisons of lists of children in school or records of infant deaths with birth records. Another method used was to distribute postal cards to every household in a State (or to a sample of households) using the postal delivery service, and to obtain a report from the household as to whether a child had been born during a specified time period. These tests varied greatly from State to State, both in methodology and quality, so that it was never possible to combine the results for the entire country in any one year.

To meet the need for national estimates of registration completeness, based on uniform measures for the States, and for information about the distribution of under-registration, the first nationwide test was conducted in 1940. A second nationwide test was carried out in 1950. These tests were conducted in conjunction with the population censuses of 1940 and 1950. Census enumerators were instructed to fill out special cards for all infants who were alive on April 1 and who had been born during the preceding 4 months for the 1940 test and in the preceding 3 months for the 1950 test. Copies of the birth records for infants born during the same periods were obtained from State offices of vital statistics and matched against the infant cards.

Estimates of registration completeness were prepared for States and local areas. The tests also provided information about under-registration by detailed characteristics such as education of mother, place of birth, race, etc. The results of these tests have been reported by Grove [1] and Shapiro [2]. A comparison of some of the results of these tests with the results of the current test are shown in section III of this report.

II. Planning and methodology of the 1964 to 1968 test

A. Planning for the 1964 to 1968 test

In the discussion of plans for evaluating the 1970 Census of Population the matter of another test of birth registration was considered. Since the last nationwide test had been conducted in 1950, significant changes in registration completeness were a possibility.

Some thought was given to a test similar to that of 1950 where estimates would be prepared for States and local areas. The needs of the Census Bureau, however, did not require such an extensive program, so the use of a sample survey to collect the birth information was considered. The Bureau was mainly interested in national estimates by race. A sample of sufficient size for this purpose would be much less costly and require fewer resources than a sample for developing estimates for States.

Two basic requirements were considered in determining the sample size for the study:

- 1. The sample should provide approximately equal reliability for national estimates by race.
- 2. The sample should be large enough to provide national estimates with a very small sampling error. For example, a national estimate of the percent of white births that are registered should have a standard error of about 0.1 percentage point.

To meet these requirements it was estimated that a total sample of about 15,000 children would be required, with roughly equal numbers of children for the two racial groups, white and Negro and other races. A sample of this size could be obtained from the continuing monthly sample surveys carried out by the Census Bureau by extending the collection period over a period of several months and by selecting children born over a 5-year period.

Before making any final decisions on sample size, however, a pretest of forms and procedures was carried out in September 1968, using a sample of households in the Washington, D.C., area that were included in the Current Population Survey (CPS), a monthly household survey conducted by the Census Bureau. In the pretest, information was obtained for all children enumerated in the CPS who were born in the years 1963 to 1967. Extending the reference period back to 1963 provided a way of examining problems in locating birth certificates due to the failure of respondents to recall correctly the information needed for searching the birth registration files. Four registration offices cooperated in the pretest: District of Columbia, Virginia, Maryland, and Baltimore city.

The results of the pretest were very satisfactory. The registration offices located certificates for all but four cases out of 133 in the first search of their files. After followup interviews for these cases only one could not be matched. Based on the pretest experience, some minor modifications in the forms and procedures were made; the suggestions made by the registrars were very helpful in this respect.

B. Test methodology

The population for the study was defined as all children born in the 5-year interval 1964 to 1968 who were alive at the time of the interview. The Census Bureau conducts a number of household surveys which use national probability samples and are thus suitable for obtaining a sample from this population. In addition, in the conduct of these household surveys a cadre of trained interviewers who are permanent employees of the Bureau is employed. Two of these were used in the study, the Current Population Survey (CPS) and the Health Interview Survey (HIS). Both are continuing sample surveys. The CPS is carried out 1 week each month and includes about 50,000 households, of which about 6,000 each month are new households in the sample. The HIS is a weekly survey of about 800 households and each week's sample is a different set of households. To obtain the required sample of white children, only 1 month of the CPS was needed. However, to obtain about the same number of children of Negro and other races, it was necessary to use both surveys over a 10-month period.

The actual collection of birth information began in June 1969 and continued through March 1970. For each eligible child enumerated in the CPS and HIS, interviewers completed a Birth Card (appendix A) at the time of the interview. In addition to demographic

information about the child, the Birth Card contained a number of items important for matching purposes, such as maiden name of mother, usual residence of mother at time of birth, place of birth, and type of attendant at birth. These completed Birth Cards were reviewed in Washington for completeness of information and then delivered¹ to the various State and city registration offices for search.

For the initial search no specific instructions were given to the registration offices other than requesting a copy of each birth certificate that matched the Birth Card information. When the results of this first searching operation were received in Washington, the birth certificates and Birth Cards were reviewed and definite matches were established for about 97 percent of the Birth Cards. For Birth Cards that could not be matched on the first attempt, followup interviews were conducted with the sample households to verify the original information and obtain additional information for searching and matching purposes (the form used for these interviews is shown in appendix B). All of the unmatched cases were returned to the registration offices for a second search. For the second search we asked the registration offices to search at least 1 year on either side of the birth year and under all names appearing on the Birth Card and to make use of all indexes or files that might possibly help. Many of the offices did much more.

One group of Birth Cards that was particularly difficult to match was the group of cards for adopted and foster children where information on some or all of the identification items was missing. At the time of the second or followup interview, interviewers were instructed to obtain the names, addresses, and phone numbers of the persons or agencies responsible for the care of these children. At the same time interviewers obtained information about availability of birth certificates for some of these children. Followup telephone calls were made from Washington to agencies and persons to try to find out whatever we could about their knowledge of the registration of the birth. Putting all of this information together, a judgment had to be made as to whether or not a particular case should be considered as registered. This is one element of the statistics that involved some subjectivity. These cases were less than 0.3 percent of the total cases (14,632) involved in the study.

C. Estimation procedure and reliability of the estimates

The measures of birth registration completeness by race were computed by dividing the total number of infant cards matched with birth certificates by the total number of infant cards, matched and unmatched.

¹All information collected in CPS and HIS is, by law, confidential. To insure confidential treatment of the Birth Card data, a Census employee personally delivered the cards to personnel in the registration offices who had been sworn in as Special Agents of the Bureau of the Census for the purpose of this study.

Since different rates of sampling were used for whites and for Negroes and other races, the estimates for the total population are weighted estimates, where the weights are obtained from published numbers of births by race [3] corrected for under-registration. The factors used to correct for under-registration were those estimated from the present study for regions, years, sex, and place of occurrence. These corrections for under-registration, however, had a negligible effect on the estimates of birth registration completeness for all races combined.

Table A below shows the sample sizes by race for regions, for births in and out of hospitals, and for males and females.

Table A. Sample Sizes for Birth Registration Study:
1964 to 1968

Item	Total	White	Negro and other races
U.S. total.....	14,632	7,819	6,813
Northeast.....	3,188	1,948	1,240
North Central.....	3,640	2,443	1,197
South.....	5,693	2,051	3,642
West.....	2,111	1,377	734
Births in hospitals.....	13,734	7,675	6,059
Births not in hospitals ¹ ..	898	144	754
Male.....	7,348	3,970	3,378
Female.....	7,284	3,849	3,435

¹Includes place of birth not reported.

Since the estimates are based on a sample, they may differ somewhat from the figures that would have been obtained if a census had been used in the study rather than a sample. The standard error is primarily a measure of the sampling variability, that is, the variations that might occur by chance because only a sample of the population is surveyed. The standard errors shown in this report were computed using the variance of a binomial distribution, $\frac{pq}{n}$, multiplied by a factor which takes into account the increase in sampling variance due to the clustering of households in the sample selection. The final stage of sample selection in CPS and HIS involved selecting clusters of six households which are geographically close together.

An approximation to the standard error of a difference between two sample estimates may be obtained by taking the square root of the sum of the squares of the standard errors of the two estimates. The chances are about 19 out of 20 that a sample estimate differs by less than two standard errors from the value which would have been obtained if the study had included all births. Statements of comparison are made in this report when the differences between two sample estimates exceed twice the estimated standard error of

the difference. In addition, we have pointed out cases where a given set of differences is in a consistent direction, even though the individual differences may not exceed twice their standard errors.

As in any survey work, the results are subject to nonsampling errors such as errors in coverage, response, and reporting. Although it is not possible to determine the effect on the sample estimates of all possible sources of error, some of the more important factors that could affect the results are:

1. Failure of CPS and HIS to enumerate children who are eligible for inclusion in CPS and HIS samples but for one reason or another are omitted.
2. Exclusion from the survey of children born during 1964 to 1968 but who died prior to the time of enumeration.
3. Erroneous information and missing information on the Birth Cards, affecting the ability to locate a matching birth certificate; also, misfiling of certificates and errors in the registration records, contributing to inaccuracies in the estimates.

The effect of the last factor on the present study is thought to be small, since intensive followup efforts were made to verify information and to obtain missing information to complete the record search. However, the overall effect would be to underestimate the completeness of registration. The effect of the first two factors depends on the extent to which the birth registration rates for these children differ from those enumerated. If children omitted from CPS and HIS also tend to be unregistered then the effect would be to overestimate the extent of the completeness of registration.

The 1940 and 1950 results are based on a complete census so there is no sampling variability involved. The results are, however, subject to errors of response and reporting. Also, the results relate to the 3- or 4-month periods and any seasonal variation in registration would not be reflected.

III. Test results

A. Registration completeness in 1964 to 1968

1. Race and sex

a. Race. Table B shows the estimated registration rates by race (white, Negro and other races) for the United States and for the four major regions. The sampling variability of these estimates is shown by the estimated standard error. The pattern of lower registration among Negroes and other races is consistent among all regions although the only differences between "white" and "Negro and other races" that exceed twice their standard errors are those for the United States total and for the South region.

Table B. Birth Registration Completeness by Race for United States Total and Regions: 1964 to 1968

Region	Total		White		Negro and other races	
	Per- cent regis- tered	Esti- mated stand- ard error	Per- cent regis- tered	Esti- mated stand- ard error	Per- cent regis- tered	Esti- mated stand- ard error
U.S. total...	99.2	0.1	99.4	0.1	98.0	0.3
Northeast....	99.0	0.3	99.1	0.3	98.1	0.6
North Central	99.5	0.2	99.7	0.2	98.6	0.6
South.....	98.8	0.2	99.3	0.3	97.6	0.4
West.....	99.5	0.2	99.6	0.3	99.2	0.5

For all races combined the differences among regions are small. The estimates range from 98.8 percent for the South region to 99.5 percent in the North Central and the West regions, a difference of 0.7 percentage point. For white births the estimates range from 99.1 percent in the Northeast region to 99.7 percent in the North Central region, a difference of 0.6 percentage point and for Negroes and other races the estimates range from 97.6 percent in the South region to 99.2 percent in the West region, a difference of 1.6 percentage points.

b. Sex. Table C shows the estimates from the present study of the completeness of birth registration for males and females by race. The differences between the registration rates for males and females are very small and well within those that would be expected from sampling variability alone.

Table C. Birth Registration Completeness by Race and Sex for the United States: 1964 to 1968

Sex	Total		White		Negro and other races	
	Per- cent regis- tered	Esti- mated stand- ard error	Per- cent regis- tered	Esti- mated stand- ard error	Per- cent regis- tered	Esti- mated stand- ard error
Both sexes...	99.2	0.1	99.4	0.1	98.0	0.3
Male.....	99.2	0.1	99.4	0.2	97.9	0.4
Female.....	99.2	0.1	99.5	0.2	98.0	0.4

2. In-hospital versus out-of-hospital

Historically births occurring in hospitals have been more completely registered than those not occurring in hospitals. In fact, since 1950, the National Center for Health Statistics (NCHS) has extended the 1950 test results by adjusting births separately for in-hospital and out-of-hospital occurrence to obtain current estimates of overall registration completeness. As the proportion of

births occurring in hospitals increases, the overall rate of registration improves provided the relationship between registration rates for in-hospital and out-of-hospital births remains stable. Table D shows estimates prepared by NCHS of the distribution of live births by occurrence in or out of a hospital for 1950 to 1968.

Table D. Percentage Distribution of Live Births in Hospitals and Not in Hospitals by Race for the United States: 1950 to 1968

Year	Total		White		Negro and other races	
	In hos- pital	Not in hospital	In hos- pital	Not in hospital	In hos- pital	Not in hospital
1968.	98.5	1.6	99.4	0.6	94.0	5.9
1967.	98.3	1.7	99.4	0.7	92.9	7.1
1966.	98.0	2.0	99.3	0.7	91.6	8.5
1965.	97.4	2.7	98.9	1.1	89.8	10.3
1964.	97.5	2.6	99.1	0.9	89.0	11.0
1963.	97.4	2.7	99.1	0.9	87.9	12.1
1962.	97.2	2.9	99.0	0.9	86.9	13.1
1961.	96.9	3.1	98.9	1.1	86.0	14.0
1960.	96.6	3.4	98.8	1.2	85.0	15.0
1959.	96.4	3.6	98.7	1.3	83.7	16.3
1958.	96.0	3.9	98.4	1.6	82.5	17.6
1957.	95.7	4.4	98.2	1.8	81.1	18.9
1956.	95.1	4.9	98.0	2.0	78.7	21.2
1955.	94.4	5.7	97.5	2.6	76.0	24.0
1954.	93.6	6.4	97.0	3.0	73.1	26.9
1953.	92.8	7.2	96.5	3.6	70.3	29.7
1952.	91.7	8.3	95.7	4.3	66.4	33.6
1951.	90.0	10.0	94.4	5.6	62.4	37.7
1950.	88.0	12.1	92.8	7.2	57.9	42.1

Source: Vital Statistics of the United States, 1968, Volume 1, Natality, National Center for Health Statistics, U.S. Department of Health, Education, and Welfare (1970).

Table E shows the estimated percent of births which were registered by whether or not they occurred in hospitals and by race for the period 1964 to 1968. For the total and for "Negro and other races" hospital births are definitely registered more completely than nonhospital births. Births occurring in hospitals are somewhat better registered for whites than for Negroes and other races.

Table E. Completeness of Registration of Hospital Births and Births Not in Hospital by Race for the United States: 1964 to 1968

Race	Births in hospital		Births not in hospital ¹	
	Percent regis- tered	Estimated standard error	Percent regis- tered	Estimated standard error
Total....	99.4	0.1	93.7	1.3
White.....	99.5	0.1	² 94.4	3.0
Negro and other races..	98.6	0.2	93.4	1.4

¹Includes cases where place of birth was not reported.

²Based on 144 birth cards in the sample.

3. Single calendar years. Table F shows the estimated completeness of birth registration for each of the years included in the study. The pattern of lower registration for "Negro and other races" is consistent from year to year.

B. Comparison with 1940 and 1950 tests.

The results of the two earlier tests are shown in table G along with results from the current study.

Table F. Birth Registration Completeness by Years and Race for the United States: 1964 to 1968

Year	Total		White		Negro and other races	
	Per-cent registered	Estimated standard error	Per-cent registered	Estimated standard error	Per-cent registered	Estimated standard error
Total..	99.2	0.1	99.4	0.1	98.0	0.3
1964..	99.1	0.3	99.3	0.3	97.7	0.6
1965..	99.2	0.3	99.4	0.3	97.9	0.6
1966..	99.0	0.3	99.2	0.4	98.5	0.5
1967..	99.6	0.2	99.9	0.1	98.0	0.6
1968..	99.1	0.3	99.3	0.3	98.0	0.6

Table G. Registration Completeness of Births in Hospitals and Not in Hospitals by Race for the United States: 1940, 1950, and 1964 to 1968 Tests

Race	1964 to 1968 ¹			1950 ²			1940 ²		
	Total	In hospital	Not in hospital	Total	In hospital	Not in hospital	Total	In hospital	Not in hospital
Total.....	99.2	99.4	93.7	97.9	99.4	88.2	92.5	98.5	86.1
White.....	99.4	99.5	94.4	98.6	99.5	88.2	94.0	98.6	88.2
Negro and other races.....	98.0	98.6	93.4	93.5	98.2	88.2	82.0	96.3	77.2

¹50 states and the District of Columbia.

²48 states and the District of Columbia.

Registration improved from 97.9 percent in 1950 to 99.2 percent for the 5 years covered by the present study. Since registration of white births was already at a high level in 1950 (98.6), more improvement would be expected in the Negro-and-other-races category and this did occur (from 93.5 to 98.0). Registration completeness of births occurring in hospitals remained the same, 99.4 percent. However, the registration of births not in hospitals increased from 88.2 percent in 1950 to 93.7 percent in the current study. This was a greater increase in registration of out-of-hospital births than occurred from 1940 to 1950.

In all three tests, infant cards filled out by an interviewer during a household visit were matched against birth records. However, there are differences among the three tests as to the age of children included, the length of the reference period, survey procedures, followup procedures, etc. A major difference, of course, is that the current test was carried out on a sample basis whereas the two previous tests, which were included as a part of the population censuses of 1940 and 1950, covered all infants born in the 3 or 4 months preceding these censuses.

Table H. Comparison of Estimates of Percent Completeness of Birth Registration From Extension of 1950 Test and Results of the 1964 to 1968 Test for the United States, by Year and Race

Year	Total			White			Negro and other races		
	1964-1968 estimate (a)	Extension of 1950 test (b)	Difference (a-b)	1964-1968 estimate (c)	Extension of 1950 test (d)	Difference (c-d)	1964-1968 estimate (e)	Extension of 1950 test (f)	Difference (e-f)
1964 to 1968.	99.2	99.0	0.2	99.4	99.4	0	98.0	97.2	¹ 0.8
1968.....	99.1	99.1	0	99.3	99.4	-0.1	98.0	97.5	0.5
1967.....	99.6	99.0	¹ 0.6	99.9	99.4	¹ 0.5	98.0	97.3	0.7
1966.....	99.0	99.0	0	99.2	99.4	-0.2	98.5	97.2	¹ 1.3
1965.....	99.2	98.9	0.3	99.4	99.3	0.1	97.9	96.9	1.0
1964.....	99.1	98.9	0.2	99.3	99.4	-0.1	97.7	96.9	0.8

¹Difference is larger than two times the estimated standard error of the 1964 to 1968 sample estimates.

Source for estimates based on extension of 1950 test is: Vital Statistics of the United States, 1968, Volume I, Natality, National Center for Health Statistics, U.S. Department of Health, Education, and Welfare (1970).

C. Comparison with estimates based on extensions of
1950 test

Although NCHS discontinued publication of adjusted numbers of births in 1960, estimates of percent completeness to date have been prepared by NCHS on the basis of the 1950 test. The estimates were made by assuming that the completeness of birth registration according to place of occurrence (in hospital and not in hospital) by race and State in 1950 prevailed for the years in question.

The changes in estimated overall completeness since 1950 reflect only those improvements that are believed to have resulted from the increase in the

proportion of births occurring in hospitals. No allowance has been made for increases in the completeness of registration that may have been achieved within both in-hospital and out-of-hospital categories.

Table H shows the estimated percent completeness based on 1950 test results as published in the NCHS volume, "Vital Statistics of the United States," and the estimates from the current test for the years 1964 to 1968. The 1964 to 1968 sample estimates are consistently higher than the extensions from 1950 for "Negro and other races." This is mainly due to the improved registration of out-of-hospital births for "Negro and other races" since out-of-hospital births still constitute a relatively high proportion of births in this group.

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Appendix A

Budget Bureau No. 41-S69033; Approval Expires December 1970

FORM CPS-577 U.S. DEPARTMENT OF COMMERCE BUREAU OF THE CENSUS BIRTH CARD For children born between January 1, 1964 and December 31, 1968		NOTICE - Your report to the Census Bureau is confidential by law (Title 13, U.S. Code). It may be seen only by sworn Census employees and may be used only for statistical purposes.		Inter. code	Line No.	Ident. code	Household No.	Segment No.	Sample	Control No.	Date	REGISTRAR'S USE ONLY Birth certificate No.
Address (House and street or RFD No.)		City		Part D - INTERVIEWER TRANSCRIPTION ITEMS (Copy from Control Card) 1. Date of birth of child (Item 17) Month Day Year 2. Sex of child (Item 21) <input type="checkbox"/> Male <input type="checkbox"/> Female 3a. Name of father (Item 14a) (Please print) First Middle Last b. Father not a household member <input type="checkbox"/> (Skip to question 7) 4. Date of birth of father (Item 17) Month Day Year 5. Age of father on last birthday (Item 18) <input type="text"/> 6. Race of father (Item 20) <input type="checkbox"/> White <input type="checkbox"/> Negro <input type="checkbox"/> Other 7. Date of birth of mother (Item 17) Month Day Year 8. Age of mother on last birthday (Item 18) <input type="text"/> 9. Race of mother (Item 20) <input type="checkbox"/> White <input type="checkbox"/> Negro <input type="checkbox"/> Other 10. Educational attainment of mother: a. What is the highest grade or year she attended? (Item 24a) <input type="text"/> b. Did she complete that grade (year)? (Item 24b) <input type="checkbox"/> Yes <input type="checkbox"/> No								
County		State										
Part A - INTRODUCTION												
The Census Bureau is doing a study of birth registration of children born between January 1, 1964 and December 31, 1968. Now I have some questions about (Read child's name from Control Card item 14a). 1a. Is this (his) (her) FULL name, including first, middle, and last? <input type="checkbox"/> Yes (Enter child's name below, then go to question 2) <input type="checkbox"/> No (Continue with question 1b) First Middle Last				1b. What is (his) (her) FULL name? (Enter child's name below, then go to question 2) First Middle Last 2. CHECK ONE (Ask only if there is some doubt as to whether the respondent is the child's mother) Are you . . . 's mother? <input type="checkbox"/> Mother (Go to Part B) <input type="checkbox"/> Other (Go to Part C)								
Part B - RESPONDENT IS CHILD'S MOTHER				Part C - RESPONDENT NOT CHILD'S MOTHER								
1. Were you living at this address when you gave birth to . . . ? <input type="checkbox"/> Yes (Copy address in space at right from heading, then skip to question 3) <input type="checkbox"/> No (Ask question 2) 2. What was your home address when you gave birth to . . . ? (Enter address in space at right) 3. What was your maiden name? (Please print first, middle, and last name in space at right.) First Middle Last 4. Where was (child) born? (Enter actual place of birth - not mother's usual address - in space at right, then complete Part D - Transcription Items) a. State, possession, or foreign country b. County c. City, town, or location d. Name of hospital or institution (If "None," obtain type of attendant) <input type="checkbox"/> Doctor <input type="checkbox"/> Midwife <input type="checkbox"/> Other (Specify) _____ e. Place inside city limits? <input type="checkbox"/> Yes <input type="checkbox"/> No				1. Was . . . 's mother living at this address when she gave birth to . . . ? <input type="checkbox"/> Yes (Copy address in space at left from heading, then skip to question 3) <input type="checkbox"/> No (Ask question 2) 2. What was her home address when she gave birth to . . . ? (Enter address in space at left) 3. What was her maiden name? (Please print first, middle, and last name in space at left.) 4. Where was (child) born? (Enter actual place of birth - not mother's usual address - in space at left, then complete Part D - Transcription Items) a. State, possession, or foreign country b. County c. City, town, or location d. Name of hospital or institution (If "None," obtain type of attendant) <input type="checkbox"/> Doctor <input type="checkbox"/> Midwife <input type="checkbox"/> Other (Specify) _____ e. Place inside city limits? <input type="checkbox"/> Yes <input type="checkbox"/> No								
				Birth certificate number								

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Appendix B

FORM CPS-577B U.S. DEPARTMENT OF COMMERCE BUREAU OF THE CENSUS FOLLOW-UP BIRTH CARD For children born between January 1, 1964, and December 31, 1968		NOTICE - Your report to the Census Bureau is confidential by law (Title 13, U.S. Code). It may be seen only by sworn Census employees and may be used only for statistical purposes.		Line No.	Ident. code	Household No.	Seg. No.	Sample	Control No.	Intr. code	Date	Respondent <input type="checkbox"/> PV <input type="checkbox"/> Mother <input type="checkbox"/> T <input type="checkbox"/> Other (Specify)
Full name of child in Sample		Address (House and street or RFD No.)		City		Telephone No.		Part II - VERIFICATION OF BIRTH CARD In that case, I would like to go over the questions we asked you before about . . . 's birth. INSTRUCTIONS: Verify the information on the Birth Card by repeating all questions. Correct any missing or incorrect information with red pencil. For entries that are the same, enter a red check (✓) beside the item. Pay particular attention to the spelling of the child's name, the place of birth, the date of birth, and the mother's maiden name. Go to Part III				
County		State		<input type="checkbox"/> No phone								
Part I - INTRODUCTION							Part III - ADDITIONAL QUESTIONS					
Several months ago, you answered some questions about . . . as part of a national study of birth registration. To complete the study, we need to verify some information about . . . 's date and place of birth. Did you receive our letter? (If letter received and filled out, complete appropriate sections of Follow-up Card. If letter not received or not filled out, begin with Question 1.) 1. Is . . . 's birth certificate or a copy of it available in the house? <input type="checkbox"/> Yes - Personal visit - May I see it? Telephone follow-up - Would you get it and give me some information from it? <input type="checkbox"/> No } Go to Part II <input type="checkbox"/> Certificate available (Fill Q. 2 below) <input type="checkbox"/> DK } <input type="checkbox"/> Certificate not available (Go to Part II)							1. Is it possible that another name for . . . was entered on the birth certificate and never changed? <input type="checkbox"/> Yes - What was that name? First Middle Last (Q. 3) <input type="checkbox"/> No (Q. 2)					
2. Transcribe the following: If a telephone interview, ask the respondent to read information. a. Name as recorded First Middle Last b. Date of birth Month Day Year c. Place of birth State County City d. Mother's maiden name First Middle Last e. Birth Certificate No.							2. Has . . . ever been known by a name other than (Child's full name) ? <input type="checkbox"/> Yes - What was that name? First Middle Last (Q. 3) <input type="checkbox"/> No (Q. 3)					
							3. Is it possible that . . . 's birth certificate was recorded in a State other than _____ ? <input type="checkbox"/> Yes - Which State? _____ (Q. 4) <input type="checkbox"/> No (Q. 4)					
							4. Do you have any reason to believe that . . . 's birth was not registered? (Check appropriate box but also enter any comments made by the respondent.) <input type="checkbox"/> Yes <input type="checkbox"/> No Comments					
THANK YOU, YOU HAVE BEEN VERY HELPFUL. END INTERVIEW							THANK YOU, YOU HAVE BEEN VERY HELPFUL. END INTERVIEW					



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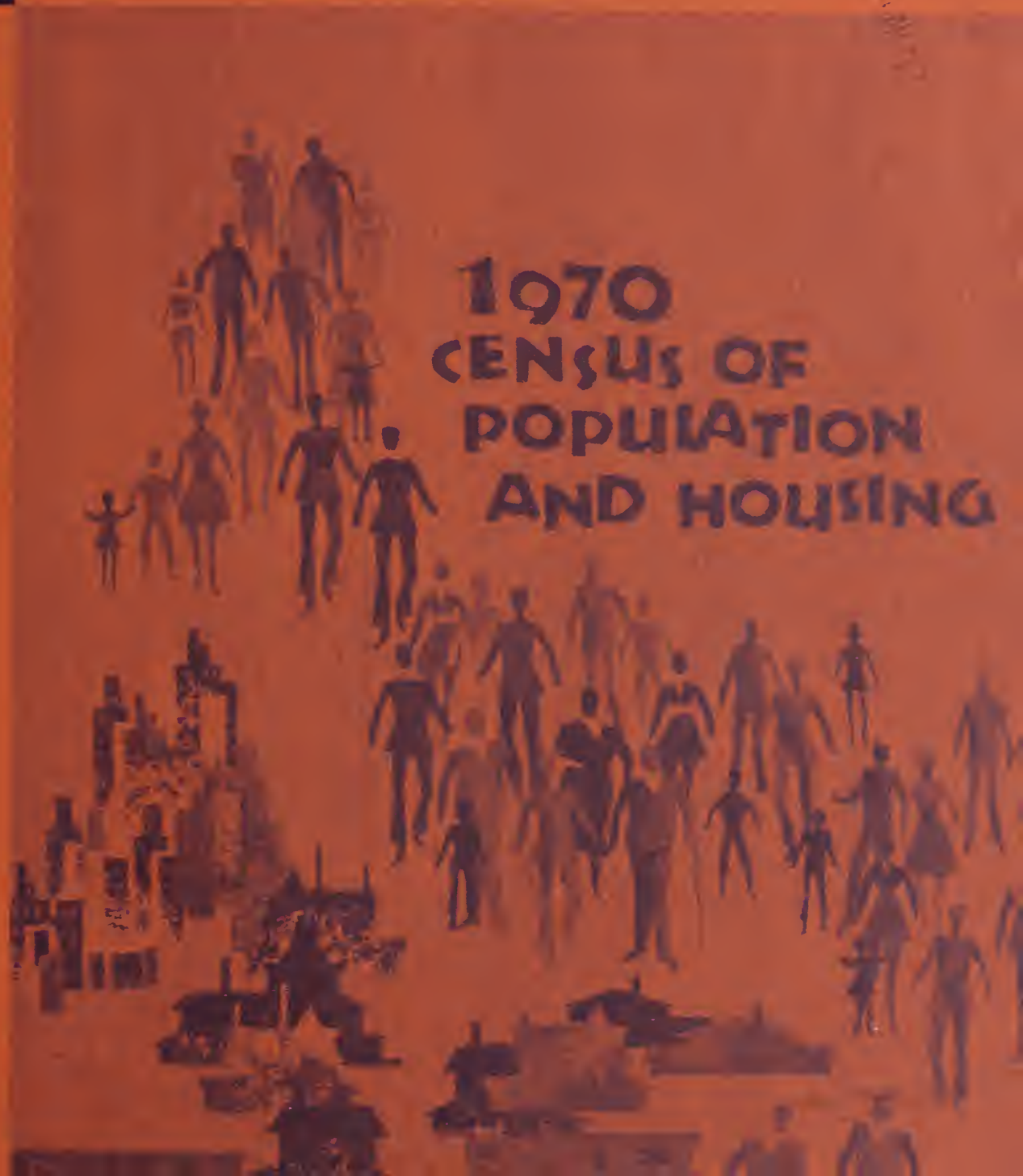


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David L. Kaplan, 1970 Census Coordinator

STATISTICAL METHODS DIVISION

Morton Boisen, Chief

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1970 CENSUS OF POPULATION AND HOUSING

Evaluation and Research Program

Results and Analysis of the Experimental Mail Extension Test

Issued June 1973

Preface

This is one of a series of reports from the Evaluation and Research Program of the 1970 Census of Population and Housing. The program comprises a variety of studies, each designed to produce data on the accuracy of selected subject matter or on the effectiveness of specific methodological features of the census taking process. The major findings and results from these studies are being published in the PHC(E) series of reports, as significant phases of the various studies are completed.

This report presents the results of an experimental test of mail out/mail back procedures in kinds of areas which were enumerated by the conventional list-enumerate methods in the 1970 Census. Data from five areas originally designated for conventional enumeration, but converted to mail procedures, are compared with similar data from five conventionally enumerated areas paired with the test areas on the basis of population density, urbanization level, and minority population proportions. Mail and conventional census comparisons are made of completeness of housing unit enumeration, sample selection control, completeness of census questionnaires, costs, and coordination and control of operations.

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RESULTS AND ANALYSIS OF THE EXPERIMENTAL MAIL EXTENSION TEST

I. Background

In a major innovative step, the Census Bureau adopted a mail-out/mail-back (Mail) method of enumeration for use in most large urban areas in the 1970 Decennial Census of Population and Housing. In those areas designated to be enumerated by mail, a mailing list of all living quarters was compiled, census questionnaires were sent to the households on this list, and the households were requested to complete and mail back the questionnaires. The balance of the country was enumerated by the door-to-door list-enumerate (Conventional) method.

For most areas to be enumerated by mail, a list of city delivery-type addresses (with house number and street name) derived from a commercial mailing list was sent in 1969 to the Post Office Department to be updated. The updated list of addresses was then computer-processed through the Address Coding Guide (ACG) which assigned appropriate geographic codes to each address. Those addresses not codable by the ACG were forwarded to the field staff who determined the geographic codes. From this list of addresses computer-printed address labels were generated, and each was affixed to a mailing piece containing a census questionnaire, instruction booklet, and return envelope.

In the remaining areas to be enumerated by mail but not covered by the aforementioned procedure (e.g., the fringe of a metropolitan area with large numbers of rural route addresses), a manual address listing operation called prelisting was undertaken.

Most prelisting occurred in the fall of 1969 except in those more temperate areas where it was scheduled for early spring 1970. Hand-addressed mailing pieces were then generated from these lists of addresses.

All mailing pieces were transmitted around the 15th of March 1970, to local post offices where they were sorted and cased in order to detect omitted addresses and delete nonexistent or duplicate ones (the casing check). A final check for missing addresses was made at the time of delivery (the time-of-delivery check). Units added during these checks are known as "blue card" adds.

The mailing pieces were delivered 4 days prior to Census Day, April 1, 1970, with the request that the questionnaires be completed and mailed back on Census Day. Check-in and review of census questionnaires began a few days later. Questionnaires which had not been mailed back and those that were incomplete were followed up.

Mail census areas were enumerated using two different district office¹ procedures: "centralized" in the inner cities of large densely populated metropolitan areas (e.g., New York, Los Angeles, Chicago), and "decentralized" in the balance of the mail areas. In decentralized areas the individual enumerator was responsible for all phases of enumeration including check-in, editing, and follow-up of questionnaires. In centralized areas

check-in, editing, and telephone follow-up were handled as an office operation performed by office clerical staff; the enumerator was responsible only for personal visits. Of the two mail office procedures, the decentralized was used much more extensively.

The procedure used in nonmail census areas was modeled on methods used in previous censuses. An unaddressed census questionnaire with the 100 percent population and housing items called an advance census report (ACR) was delivered by the postman to each household. Beginning on Census Day, the enumerator canvassed his area and picked up the ACR's, checked each for completeness, and obtained the sample information for those households in the census sample.

The delineation of the mail area was based primarily on population density and the completeness of city delivery-type address coverage by the commercial mailing list that the bureau used. Although approximately 60 percent of the population was included within the limits of the mail census, less than 7 percent of the nation's land area was involved. The nearly 10 years of testing and formulating the techniques to be used in the mail census had been focused mainly in urban centers, with the exception of a few listing and post office tests done in rural areas. The lack of experience with mail methods in rural areas and the inherent differences between the mail-out/mail-back and conventional list-enumerate areas as defined for the 1970 Census makes extrapolating directly from the mail experience to determine the effect and/or feasibility of extending the technique to more rural areas speculative.

The Mail Extension Test was devised to provide a means of comparing directly, under decennial census conditions, the two basic 1970 Census procedures—the decentralized mail and the list-enumerate conventional—in the kinds of areas in which conventional procedures were used in 1970. The reasons for not conducting a mail census more extensively in 1970 were administrative and operational ones. The quality of data collected under self-enumeration had been established in past studies. The purpose of the Mail Extension Test was not to confirm or dispute the improvement in data quality under the mail technique (self-enumeration) but to study the feasibility of its operational aspects in semirural areas, such as the ability to compile a complete mailing list. Other major studies in the 1970 Census Evaluation Program are charged with measuring the quality of the mail census statistics. If those studies reaffirm the superiority of self-enumeration, the desire would be to extend the mail data collection techniques as far as feasible in the next census. The results of the Mail Extension Test relate only to the census methods as defined and implemented in the 1970 Census. Obviously, other methods and procedures might have produced different results.

To test the feasibility of extending such procedures to the more rural areas, the decision was made to select five districts slated to be enumerated conventionally and to redesignate them as decentralized mail. (The limitation to five was too restrictive statistically—a point which will be discussed in section III of this report.) In addition to testing the feasibility of mail procedures, some measures of data quality which could easily be obtained were also compared between the two census methods.

¹ A district office administered the census enumeration of an area that contained approximately 500,000 persons.

II. Selection of the Test Offices

The 196 conventional offices in the conterminous United States were arranged by their 1960 population densities. Offices with population densities of less than 15 persons per square mile (26 offices) were excluded from consideration, since they were thought to be less likely candidates for mail census extension. Offices with population densities greater than 100 persons per square mile (13 offices) were also excluded since they had densities and enumeration characteristics similar to areas already slated for mail census techniques.

Pairs of the remaining 147 conventional offices were formed so that pair-members were not only geographically contiguous but had similar population densities, urbanization levels, proportions of Negro population, and terrain features. Selection of five pairs of offices was made to provide geographic spread and observations of various population density levels, as well as closeness between pair-members in 1960 values of the matching characteristics (see table A). The selections were not meant to be, nor should they be construed as, a random selection of the total conventional census experience.

TABLE A

District office*	1960 Census population				Area (sq. miles)
	Density	Total	% in urban areas	% Negro	
RICHMOND, IND. . .	79.1	322,937	45.3	1.5	4,084
Van Wert, Ohio . . .	77.2	440,570	37.2	0.6	5,709
JONESBORO, ARK. .	45.2	444,094	33.2	30.3	9,824
Jackson, Tenn. . . .	45.9	456,039	28.1	25.7	9,927
MANKATO, MINN. .	37.7	375,475	34.9	0.0	9,960
Sioux City, Iowa . .	35.8	453,793	39.6	0.3	12,675
TALLAHASSEE, FLA.	29.2	343,295	42.2	29.2	11,741
Panama City, Fla. . .	32.6	306,049	47.5	20.8	9,392
EUGENE, OREG. . .	26.0	595,680	44.6	0.1	22,954
Lacey, Wash.	26.0	695,779	46.0	0.1	26,722

*The Mail Test districts are shown capitalized with each Mail district followed by the Conventional control district paired with it. This same means of distinguishing between pairs and between the Mail and Conventional pair-members is used for all tables in this report.

One member of each chosen pair of offices was randomly picked to be enumerated by mail. The other pair-member remained conventional, becoming the control office against which the mail experiment was to be measured.² The regular decentralized census procedures were used in the five selected offices, although it was recognized that they would be working within a system not designed with semiurban and rural areas in mind. Handicaps arising because of this will be discussed in the appropriate results sections of this report. The Regional Offices responsible for the supervision of the test areas were instructed that "these offices should not receive differential treatment in hiring, recruiting, publicity, planning, or any other aspect of operations. Insofar as

possible, the District Office staff, the public, and even the regional technician [the liaison between the Regional Office and its district offices] should not be aware of any differences. Those that do know should try to conceal the fact rather than advertise it."³

The creation of homogeneous pairs and random conversion of one member of each pair to mail permits meaningful comparisons of cost, completeness of coverage, coordination and control, and data quality between the mail and conventional technique, thus testing the feasibility of conducting a mail census operation in the type of area enumerated by conventional means in 1970. The coverage data are based on a subsample of areas selected from the 10 districts and required additional work by the census field staff to collect. All other factors compared were derived from total census counts for these offices and from various reporting forms filled during the normal census process.

III. Statistical Analysis—The Limitations

Selection of the five pairs of districts, as mentioned earlier, was purposive rather than random. The pairs were deliberately chosen to provide information on a wide variety of physical conditions. Because of this the offices should not be assumed to be a representative sample of conventional offices, nor is there any assurance that the characteristics being studied for the 10 have any specified distribution. Thus, any conclusions drawn are technically limited to the districts involved in the test. The random selection of the mail pair-members, however, allows us to assume that the expected value of any measure to be studied is equal for both members of a pair if the application of the mail or conventional procedure has no effect on the measure.

Because of the purposive nature of the design, the very limited number of observations (five), and the fact that the areas selected were paired expressly to control extraneous variability, there is no accurate way of estimating the standard errors of the observed differences between characteristics for the mail and conventional pair-members. Without such standard error estimates no statements on how large or small the differences actually are can be made. Furthermore, the small sample of only five paired observations limits the statistical tests for detecting differences that can be applied to the data.

All statements of significance in this report are based on the Sign Test for related samples, the test statistic being the number of times the difference between the mail and conventional pair-members for the characteristics being analyzed is positive or negative. The probabilities associated with the observed signs are exact and derived from the binomial expansion. The null hypothesis for the Sign Tests run on the Mail Extension Test data is that the mail census procedure has no different effect on the result than the conventional procedure—that either procedure has a probability of one-half of producing a result that is "better" or "worse" than the other. When applying the test with a sample as small as five, the rejection region for the null hypothesis must be restricted to the observation of five positive or five negative differences since even the observance of this consistency in direction within all five pairs of offices can occur by chance 6.25 percent of the time. In other words, if there is actually no difference between the mail and conventional procedures, the probability that all five signs will be the same is .0625, the Type I error.

³Quoted from a memorandum from J.D. McPike (Chief of Field Division) to the Regional Directors of the six regions involved, November 17, 1967.

²See appendix A for a list of the counties included in the 10 district offices.

The risk of a Type II error—concluding that there is no significant difference between the effect of the two census procedures on the data when in fact a difference exists—is quite high when dealing with such a small sample. The following data show the probabilities of Type II errors under three alternative hypotheses: 1. that the probability is .6 that there is a difference between the mail and conventional procedure instead of the probability of .5 under the null hypothesis; 2. that the probability is .75; and 3. that the probability is .9.

$H_0: p = .5$	$H_1: p = .6;$	$p(\text{Type II error}) = .912$
$p(\text{Type I error}) = .0625$	$H_2: p = .75;$	$p(\text{Type II error}) = .762$
	$H_3: p = .9;$	$p(\text{Type II error}) = .410$

Obviously, the Sign Test cannot discriminate well between "no difference" and a slight or moderate difference in the data when limited to a sample of five observations, which means that a substantial difference may exist between the effects of the two census procedures which cannot often be detected in the Mail Extension Test data. Therefore, the statistical conclusions presented in this report are necessarily conservative. When "no significant difference" is found between procedures the reader should be aware that this does not imply that no difference exists, but only that the data available are too limited to detect the difference or to provide any information on its direction.

Although a summary measure for the five mail and for the five conventional areas is shown in most tables included in this report, these measures are not used in the analysis. They should not be considered indications of procedural differences acting on the data independently of the Sign Test results, nor as measures of the size of any differences found to exist.

IV. Coverage

A. BACKGROUND AND METHODOLOGY

Comparisons of coverage completeness between the mail and conventional procedure were restricted to estimates of space housing unit errors.⁴ Definitional housing unit errors⁵ were not measured since they are a relatively small part of the total coverage error. No estimates of population coverage were derived since the reinterview technique does not provide a good measure of error in population count, and given that a housing unit has been included in the census, there seems to be no inherent benefit or deterrent in either census procedure which affects the coverage of persons within the unit.

To obtain an estimate of the relative housing unit coverage level between the mail and conventional procedure, 200 enumeration districts (ED's)⁶ from the five mail offices and 220 ED's from the five conventional offices were selected with probability proportionate to the number of housing units contained within the ED's. One compact land segment containing approximately 30 units was then selected from each sample ED. Just before the closing of the 10 offices, the units within these segments were listed independently of the census, and the listings were then

matched to the census address register.⁷ All unmatched units were visited in the field by Washington professional staff who were responsible for determining the extent of error. The professional staff verified the mailing addresses and locations of the unmatched evaluation listings and attempted to associate them with units enumerated in the census. The unmatched units that remained were again searched for in the address registers, and the search extended to ED's surrounding the ones in which the unmatched units should have been enumerated. Microfilm copies of the questionnaires were also used in an attempt to match occupied units by household name. An additional special check was employed for unmatched units from the five mail offices because of the uncertainty involved in allocating units added by the Post Office to ED. All postal additions (blue cards) and units not codable by the ACG for the five District Offices were searched in an attempt to determine whether the unmatched units may have been allocated to a wrong ED, but enumerated.

The coverage evaluation was restricted to missed space units. The original plans were to measure overenumerated space units as well; however, a reasonable estimate of overenumeration for the five mail offices could not be obtained. The potential for undetected space overenumeration exists, but our checking procedures did not provide for searching for enumerated units in more than one ED. Because of this, no estimates of overenumeration are given, nor are any net coverage errors shown.

B. RESULTS

No significant difference could be detected between the overall housing unit coverage level for the two census procedures.

The estimates of total space housing unit missed rates for each of the 10 offices are shown in table 1. The paired comparisons provide no evidence of a significant difference in housing coverage between the mail and conventional methods of enumeration since two of the five mail offices had lower estimated error rates than their nonmail pair-members, while three mail offices had higher rates. (These estimates do not take into account the units imputed as a result of PEPOC and Supplemental Forms.⁸ These operations seem to have had some effect on the relative coverage levels between the two procedures—see page 5.)

The average estimated missed rates for both the mail and conventional procedures compare favorably with the rates determined for similar areas in the 1960 Census (see table B).

TABLE B

Area	Missed space housing unit rate
Mail Test District Average	2.6
Conventional Control District Average	2.3
1960 Census U.S. Total	3.1
Not in Metropolitan Areas	3.9
Urban	3.1
Rural	4.5

⁴An occupied missed space housing unit occurs when both the housing unit and the persons living in it are missed. All missed vacant units are space errors.

⁵A housing unit is definitionally missed if the occupants of two or more housing units were enumerated as occupants of one housing unit.

⁶An enumeration district was an administrative area which constituted a unit of work for an enumerator. An ED ranged in size from a single city block to several hundred square miles and contained an average of 300 housing units.

⁷A census address register is a listing of all addresses with living quarters in an ED.

⁸PEPOC (the Post Enumeration Post Office Check) and the Supplemental Forms operations were procedures instituted to detect persons and/or housing units not enumerated and correct the population and housing counts. PEPOC was essentially a postal review of the census listings in nonmail census areas. The Supplemental Forms operations were designed to detect persons and housing units that were missed by the usual census procedures (e.g., persons traveling).

Contrary to what might have been expected, no evidence of better coverage of occupied units was found under the mail procedure, but this may be a reflection of the difficulties in accurately estimating the mail missed rates.

The many pretests of the mail census had indicated that an important benefit of the procedure, particularly of the post office check of the mailing lists, was a substantial gain in the coverage of occupied housing units. No such statistical conclusion can be reached from the estimated missed occupied unit rates for the Mail Extension Test offices since consistency was not found within all five pairs (see table 1).

As mentioned earlier, no allowances or changes were made in the decentralized procedures for the five experimental districts. In retrospect, it appears clear that modifications to take into account special problems of rural-type areas would have been wise. The problems resulting from retaining the identical procedures will be discussed fully in the **Coordination and Control** section of this memorandum. However, since a few of these handicaps are likely to have had an adverse effect, both on housing coverage and/or our ability to obtain a reliable estimate of the mail error rate, a brief discussion of them at this point seems relevant.

1. **The Prelisting.**—Over 90 percent of the housing units in the five mail offices were prelisted. The original mailing lists for two of these offices, Richmond and Mankato, were derived totally in this manner, with no computer-generated addresses. Even in the three mail offices for which Address Coding Guides were developed, computer-generated addresses accounted for less than 20 percent of the mailing lists. Unlike the larger cities in which the census mailing lists were composed primarily of street names and house numbers, the lists for these five test areas were largely composed of units identified by patrons' names and the various types of rural delivery mailing addresses. Since the prelisting for four of the five offices was completed in the fall—some 8 months before Census Day—many of these unit identifications became obsolete before they could be used, often leaving only a map spot as a follow-up location aid. The unreliability and lack of map spots, and the inaccuracy of the mailing addresses probably had much to do with the often rampant deletions from many ED registers in these five offices. A comparison of the missed unit rates and the estimated deletion rates⁹ for the mail offices indicates a positive correlation between the two (see table C). Further evidence of the prelisting deficiency is found in the extent of postal additions estimated to have been made to the mailing lists. The same inadequacies in mailing addresses or location aids which often result in deletions from the address register by the enumerator, also result in questionnaires the post office is unable to deliver (NIXIE's) and the generation of blue cards which partially replace the undeliverable questionnaires.

The relationships shown in table C agree with previous studies which showed that both the number of enumerator deletions from and the number of postal additions to a mailing list were indicative of the list's level of completeness and its accuracy of identification.

⁹Estimated by taking the difference between the number of questionnaires mailed and the final unimputed housing unit count, and expressing this difference as a percent of the questionnaires mailed.

TABLE C

Mail district office	Missed space housing unit rate	Estimated delete rate	Estimated postal add rate
MANKATO	0.95	2.6	7.2
RICHMOND	1.05	3.7	6.2
TALLAHASSEE ..	3.10	4.3	9.7
EUGENE	3.42	6.6	11.4
JONESBORO	4.22	4.8	9.9

2. **The Post Office.**—The Post Office encountered two basic problems in attempting to carry out operations which were written primarily for urban areas. First, the elapsed time and resulting obsolescence of the mailing lists probably turned the postal review into a guessing game in many instances. It appears that post offices having no routes but offering only lockbox and window service substantially generated their own lists by using blue cards, since the prelisted addresses were unrecognizable to them. No ED numbers were entered on thousands of these cards making it difficult for the district office to assign them to the correct ED. Second, these five mail offices, with the possible exception of Richmond, Indiana, were surrounded almost totally by areas being enumerated conventionally. Many post offices and even carriers were both casing addressed questionnaires and adding to them, and distributing unaddressed short forms under the nonmail procedure, often with no clear idea of where one procedure was to begin and the other to end.

Because of these problems, the matching of evaluation sample units from the mail offices was considerably more difficult than the matching of units from the conventional offices. Since the only source of address register listings under the nonmail procedure was the enumerator himself, only the possibility of a boundary problem required extending the area to be searched to ED's bordering the sample one. The mail census, with its three possible sources of listings (the prelist, the post office, and the follow-up enumerator) at times made the search for sample units from these offices like looking for the proverbial needle. Even with the blue card search, through which nearly 17 percent of the previously unlocated sample units were found enumerated, it is not felt that the coverage estimates derived are necessarily the "true" ones. In all probability they represent only maximum missed rates for the five mail areas, and comparisons made with the conventional estimates are therefore biased in favor of the latter.

Estimated missed vacant housing rates from this study are too unreliable to form the basis for any procedural comparison.

The problems associated with matching vacant units in rural mail areas are even more extensive than the problems with matching occupied units discussed above. In addition to these mechanical obstacles, however, are sample design problems. The area segment design of the sample selected to measure the relative coverage levels between census procedures did not produce very reliable estimates of either enumerated vacant units or of missed vacant units, both of which tended to be highly clustered within the selected segments. Because of this unreliability no comparisons of the vacant error rates between the mail and conventional procedures will be discussed, although the estimated error rates are shown in table 1.

Imputation of units from the Post Enumeration Post Office Check and the Supplemental Forms operation had no significant effect on the comparisons of estimated total missed rates, but the imputation did lower the missed rates for occupied units so that the conventional offices had consistently better occupied unit coverage than did the mail offices.

The missed rates estimated from the coverage sample were adjusted downward by subtracting from them the rate of imputation of units from PEPOC and the Supplemental Forms operation for each of the 10 district offices. These adjusted error rates and the imputation rates used in the adjustment are shown in table 2. In general, the rates of unit imputation to the five conventional areas were greater for each pair than the imputation rates for the mail areas (even for the three conventional offices not involved in PEPOC). The effect of the total unit imputation was not great enough to result in consistency in direction within all five pairs of the adjusted total missed rates, but similar adjustments to the coverage estimates of occupied missed units did produce consistency. It appears, therefore, that these two imputation procedures, particularly PEPOC, may have improved the coverage of occupied housing within the conventional areas over that estimated to have been realized under the mail procedure.

V. Control of Census Sample Selection

A. BACKGROUND AND METHODOLOGY

One of the major concerns of the Decennial Census operation is the necessity to control the selection of housing units for which sample information is to be collected. More deviation in the selection than can be attributed to sampling variability can result in a nonrepresentative sample and introduce biases of unknown size into the population characteristics being estimated from it—a crucial consideration since so much of the census data is collected only from the selected housing units and the persons living in them. In past censuses, and again in 1970 under the conventional method of enumeration, it was the enumerator who determined which units were to be included in the sample. He did so in a systematic manner as he listed living quarters within ED's. Under the mail-out/mail-back procedures in 1970 the sample selection was, for the most part, removed from the responsibilities of the enumerator and accomplished by computer in those areas with commercial mailing lists, or by the prelisters as he created the mailing register.

The potential for introducing bias into the sample selection process has generally been assumed to be greater when the list-enumerate method is used than for the mail, since the conventional enumerator has the opportunity to vary his listing order to, intentionally or unwittingly, select units with certain characteristics by causing them to fall onto sample lines in the register. Under the mail operation the designation is made by "impartial" parties, divorced from the enumerative process, with the selected type of questionnaire mailed directly to the units.

Recognizing the potential for loss of sample selection control in conventionally enumerated areas, the 1970 Census list-enumerate procedures called for several checks to be made on the enumerators' listing order and the proportion of units and persons placed on sample questionnaires. Checks of this nature were not made in Decentralized mail areas since it was assumed that the followup enumerator had little or no opportunity to influence the selection.

Although various measures of deviation in the sample selection process have been derived in several pretests of procedures and

dress rehearsals for the 1970 Census, the same measures have never been compared between the conventional and the mail census methods, leaving the actual relationship of the level of sample control between the two methods subject to speculation. Identical measures of sampling deviation were derived for each of the 10 Mail Extension Test offices. The characteristic chosen to be examined for sampling deviation was the average household size of units selected to be in the sample within enumeration district, since past experience has indicated that the number of persons to be enumerated within a unit often seemed to influence the unit's selection. ED's containing fewer than 40 housing units were omitted from consideration since a sample selected from such small populations could vary considerably by chance under either census procedure. The following formula was used to derive the measures of deviation within ED, standardizing them so that comparisons could be made between the two methods of selection:

$$I_i = \frac{\bar{x}_i - \bar{X}_i}{\sigma/\sqrt{h}}$$

where \bar{x}_i = the average household size of sample units selected in the i th ED

\bar{X}_i = the average household size of all units in the i th ED

σ = the population standard deviation of household size in the i th ED

h = the number of sample units selected in the i th ED

The resulting sampling distribution of the standard I deviates are shown in table 3. The graphs of the average I distributions for the mail and the conventional offices are shown on page 7.

B. RESULTS

More control of the sample selection is evident when the mail procedure is used.

To compare the sampling variability between the two census procedures, the standard deviations of the I distributions for each office were calculated and are shown below in table D.¹⁰ For all pairs, the variation in the mail sample more closely approximated the expected variation and was less under the mail procedure than under the conventional—good evidence that the mail sample was selected with significantly more control than was the nonmail. As a matter of fact, the largest deviation found in the five mail offices was smaller than the smallest found in the five conventional offices.

Whether this greater variability in the sample selection actually biased any of the sample data is not known. However, the loss of control of the selection process is generally accompanied by some bias. The greater variability found in the nonmail sample illustrates the influence of the conventional enumerator on the selection process—an influence which, although not totally eliminated from the mail method of sample selection, is considerably reduced with predesignation of sample units and direct mailing of the sample questionnaire to those selected.

¹⁰For the purposes of standardizing and comparing the sampling variability between the two census procedures, a simple random sample selection process was assumed although a systematic selection was actually employed under both procedures. Based on the assumption of random sampling, the expected value of the standard deviation for each of the I distributions is 1.

TABLE D

MAIL AVERAGE	1.02
Conventional Average	1.20
RICHMOND	1.07
Van Wert	1.11
JONESBORO	0.99
Jackson	1.41
MANKATO	1.00
Sioux City	1.12
TALLAHASSEE	1.06
Panama City	1.22
EUGENE	0.98
Lacey	1.11

The overall proportion of population or housing units selected does not provide a good measure of census sample control or representativeness.

An easily computed sample statistic often used to judge the "goodness" of the census sample is the proportion of the population or housing units selected. Samples coming closer to the expected proportions, i.e., 20 percent for the 1970 Census, have been considered "better" samples. Restricting the comparison of samples to these proportions can be very misleading, as the Mail Extension Test experience illustrates. Table E shows the percentages of population and housing actually selected in each of the 10 district offices from the same ED's included in the analysis reported above. The impression given by these percentages is that the conventional procedure produced a more complete, and therefore more representative, census sample since the sample percentages come closer to the expected 20 percent than do the mail. However, these figures tell nothing of the way in which the samples were selected and ignore the variability of the selection process within the individual sampling areas or ED's. Theoretically, some ED's could contain no sample population or housing while others could have all persons or units so designated, but the proportion in sample across all ED's within a district office would not necessarily reflect this. Even if the overall sample size was found to be exactly the expected proportion of 20 percent, this would not assure that the statistics obtained from the sample were unbiased unless the method of selection had been strictly controlled.

TABLE E

District office	Percent of housing units in sample	Percent of population in sample
MAIL AVERAGE	19.4	19.3
Conventional average	19.7	19.8
RICHMOND	19.7	19.7
Van Wert	19.9	19.9
JONESBORO	19.3	19.2
Jackson	19.6	19.9
MANKATO	19.6	19.4
Sioux City	19.8	20.1
TALLAHASSEE	19.4	19.1
Panama City	19.4	19.3
EUGENE	19.2	19.2
Lacey	19.6	19.6

The reason for the samples within the conventional offices more closely approximating the expected sizes can be seen by comparing the tails of the distributions graphed on page 7. The proportion of ED's under-sampled (too few large households) and the proportion over-sampled (too many large households) are nearly equal and therefore tend to net out under the mail procedure. The proportion of under-sampled and over-sampled ED's in the conventional offices, however, indicates a net over-sampling. This inclusion of too many large households in the sample seems to have had the effect of raising the overall percentage in sample for these offices over that for the mail offices, but did so at the expense of selection control and representativeness by introducing a household size "bias" into the sample.

VI. Population and Housing Item "NA" Rates¹¹

A. BACKGROUND AND METHODOLOGY

Item "NA" rates, which express the number of times an answer was missing and was mechanically provided (imputed) as a percentage of the number of required answers, are a composite measure of the quality of many stages of the census operation. In general, they reflect (1) the respondents' desire and ability to complete the census form or to give the information to an enumerator, (2) the field and office staffs' application of the edit, enumeration, and quality control procedures, and (3) the various coverage-improving computer imputation techniques used to supplement the field counts.

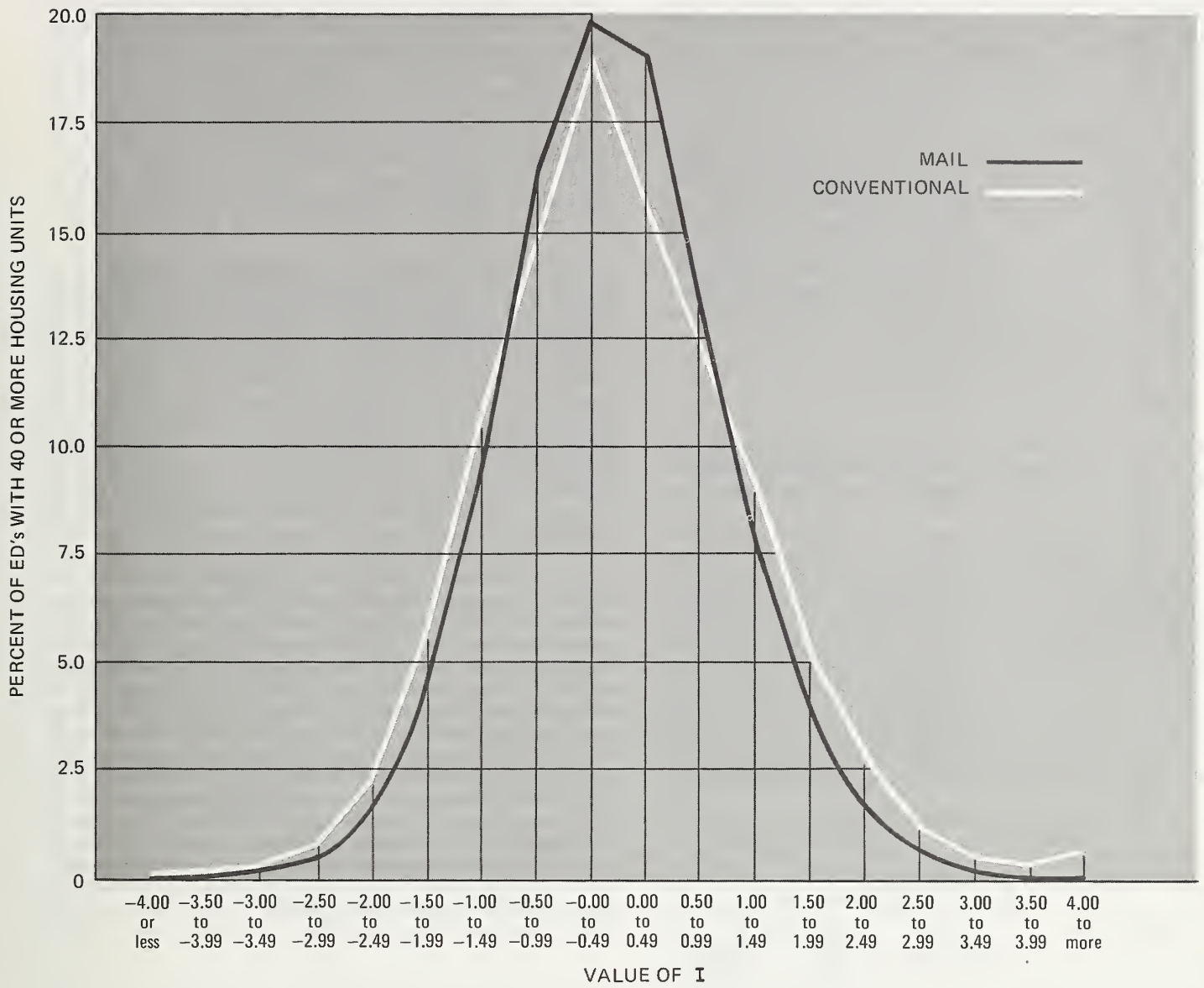
During the process of identifying and correcting for missing or inconsistent census information, two types of imputation were used—substitution and allocation. To "substitute" was to duplicate the information available for persons in enumerated households in order to account for persons in households for which no information was obtained. To "allocate" was to supply an answer to an individual unanswered or inconsistent item, either from related information on the same questionnaire, or from another questionnaire. An "allocation" says something about the extent to which a particular item was not correctly completed, whereas a substitution reflects a myriad of possibilities, e.g., close-out households¹², imputations from the National Vacancy Check¹³, PEPOC, and Supplemental forms, as well as the failure of FOSDIC¹⁴ to properly read microfilmed questionnaires.

¹¹The data presented here for the 100 percent population and housing allocation rates were obtained from a special program run on the first count census tapes for the 10 offices. The rates for the sample items discussed were derived from Census Publications PC(1)-C and HC(1)-B by summing published county data to the district office level.

¹²Closeout households are households which were known to exist at the time of the census but for which little or no census information was obtainable.

¹³The National Vacancy Check converted a portion of nonseasonal vacant units to occupied units. The conversion was based on follow-up census visits that were made to a sample of units that had been erroneously enumerated as vacant.

¹⁴FOSDIC (Film Optical Sensing Device for Input to Computer) is that part of the census document reader which is able to read the contents of microfilm by optical methods and convert the information to codes for storage on magnetic tape.

Average Distribution of I for the Mail and Conventional District Offices

Separate counts of allocations and substitution were obtained for the population census items, but no distinction between the two imputation methods was made when identifying and correcting the housing items. All forms of housing imputation were termed "allocation," so that the effect on the allocation rate of substituted housing units is not known.

Since the primary purpose in looking at "NA" rates is to compare the relative data completeness between the two census procedures when collected from similar semi-rural populations, analysis of population items will be restricted to the amount of allocation made, and there will be no comparison of the amount of substitution under each census procedure (although the substitution rates are shown in the data tables). Much of the substitution was determined on a State level, was independent of the census procedure, and the amount actually due to our particular districts is not known.

B. RESULTS

The mail procedure seems to have produced more complete 100 percent population data, but there is no evidence that the completeness of the sample population data differed between the two procedures.

An average of about 7.3 percent of the total population in the five conventional offices had one or more of the 100 percent population items allocated, while an average of only about 5.4 percent of the total mail office population had one or more of these same items allocated (see table 4). This difference between allocation rates is statistically significant since the same directional difference was noted within each of the five pairs. Similarly, three of the five individual population items—household relationship, sex, and age—as well as the overall rate derived by combining all five item rates (see table F) showed significant differences in the percent of allocation between the mail and nonmail test areas, the mail being lower in each case.

TABLE F*

District office	Overall allocation rate for—		
	100% population items	100% housing items	Sample housing items**
MAIL AVERAGE	1.37	2.40	4.0
Conventional Average	1.83	2.37	4.1
RICHMOND	1.13	2.00	3.0
Van Wert	1.33	1.79	2.9
JONESBORO	1.65	2.47	4.8
Jackson	2.75	3.38	5.6
MANKATO	0.89	1.78	2.9
Sioux City	1.44	1.67	2.9
TALLAHASSEE	1.87	2.99	5.1
Panama City	1.93	2.87	4.8
EUGENE	1.30	2.75	4.4
Lacey	1.72	2.13	4.4

*No overall rate was computed for sample population items since so few could be computed and compared on a district office level.

**Allocation rates for sample housing items can only be expressed with accuracy to one decimal place since they were taken from published figures so expressed, and not derived from the actual counts as were the 100 percent rates.

To further validate the significance of our test results, the 1960 Census relationship between the allocation rates for pair-members was checked (see table 5). No significant differences between these same offices were found to have existed in 1960 when all were enumerated under the same census procedure. Although the 1970 allocation rates have increased over the 1960 rates, allocations for household relationship, sex, and age for the conventional districts have definitely increased more than those for the mail districts—good evidence that the reason for the observed 1970 differences between pair-members is a result of the procedure under which they were enumerated.

The analysis of the comparative completeness of sample population data between the two census procedures is, unfortunately, quite limited. Of the 13¹⁵ sample items for which allocation rates were published by county, only seven are directly related to sample characteristics published at the same level, e.g., the county allocation rate for children ever born to women ever married has as its base women ever married, 15 to 44 years of age. However, the sample statistic to which this rate is supposed to refer is based on women ever married, 35 to 44 years of age. Because the number of women ever married, 15 to 44 cannot be found by county in the published volumes, the District Office allocation rates for this item could not be computed, nor could the rates for the remaining five for similar reasons.

Of the seven rates compared between pair-members, four can be said to indicate significant differences in the completeness and consistency of the population sample data between the two census procedures (see table 6). The percentage of persons for which acceptable entries were provided for two or more relevant¹⁶ sample characteristics appears to be slightly higher under the mail procedure. In addition, the "year moved into unit" item was more complete when the mail census was used. Favoring the conventional personal interview approach for sample data collection are "highest grade completed" and "farm-nonfarm residence." The remaining three sample allocation rates (nativity, level of school enrollment, and family income) showed no indication of a procedural difference. Based on this limited data, it appears that the census method used had no measurable effect on the completeness of the sample population data from the 10 test offices.

Overall, no difference was detected in the completeness of the 100 percent housing data, but the mail procedure may have had a limited effect of producing more complete data for a few selected housing items.

The type of census procedure appears to have had little effect on the housing allocation rates for the 100 percent items, especially since eight of the items showed higher average rates for the mail offices and the remaining eight showed higher average rates for the nonmail offices (see table 7). Of these 16 items, only one—"contract rent"—proved to have a mail allocation rate significantly different from the conventional rate, the mail rate being consistently lower for all five pairs of districts.

¹⁵ Although an "age" allocation rate, based on sample persons, was published, it is not included as a sample item here, but as a 100 percent item.

¹⁶ E.g., entries in "weeks worked in 1969" and "wage or salary income" for persons 14+.

Of the 23¹⁷ published allocation rates for sample housing items comparisons at the district office level could be made for 22 of them. Only seven of these items proved to have allocation rates which showed procedural effects, five tending to favor the mail method and two the conventional (see table 8). The "year built" and "number of bathrooms" items were consistently more complete in all five pairs of offices under the conventional census personal interview method, while, in general, the home appliance items, (dishwasher, food freezer, clothes dryer, etc.) were more complete using the mail-in/edit/follow-up method.

When all the 100 percent housing items are combined, and all the sample housing items are combined, and overall allocation rates computed for each type of item, there seems to be no conclusive evidence in favor of either census procedure (see table F). Extending the mail procedure to less urban areas should produce data as complete as that obtained using the conventional method.

The results found in the allocation rate comparisons appear consistent with what was expected to be the effect of the structured mail census editing operation on the 100 percent items, but seem to imply no real edit improvement for the mail sample data over the conventional procedure.

Although the mail census is often referred to as "self-enumerative," this term is descriptive of much of the conventional census as well. Nationally, the decentralized mail return rate exceeded 90 percent of the occupied households, but about 80 percent of the conventional households had at least partially filled the Advanced Census Report (a nonsample form containing only the 100 percent items) when the enumerator called to pick it up.¹⁸ Estimates of the mail return rates for the five test offices, shown in table G, compare favorably with the national estimate, and there is no reason to believe that those persons living within the borders of the five conventional districts had any more or less difficulty in completing the ACR than did those persons in nonsample households in the five decentralized districts who mailed their forms in as directed. It seems reasonable, therefore, to think of these respondent-filled ACR's as short form "mail returns" for the purpose of comparing the two census procedures. Those ACR's left unfilled by conventional respondents, as well as all conventional sample information, can be considered "nonmail returns"—or cases for which

the enumerator had to obtain all the required information through direct interviewing. For these "nonmail" situations, there is no reason, when confining the analogy to the 10 offices in this study, to feel that the enumerators who worked in the five conventional areas were any more or less qualified, or inherently better or poorer enumerators than those in the five mail areas, since the populations from which they were selected were quite similar.

Considering the similarities between the data collection techniques of the two types of censuses, it would appear that the most potentially influential difference between them, from the standpoint of completeness of the 100 percent items from the "mail return" questionnaires, was not the fact that one census was actually done by mail and the other not, but the time and environment provided the decentralized enumerator to fully edit these "returns." Appendix B outlines the basic steps followed by the enumerators under both procedures. The primary difference between them is the structured editing of all mail return questionnaires, done in the enumerator's home, and completed before going into the field in mail areas, versus the requirement for editing the 100 percent items as part of the collection of questionnaires in the respondents' homes in conventional areas. It seems that the conventional enumerator is at a disadvantage when the completeness of nonsample items is compared between the two procedures, since a cursory edit of these items was all allowed him. The decentralized enumerator-editor was trained specifically in using related information and write-in entries to fill FOSDIC circles respondents overlooked, and was provided the time to make such corrections. The Mail Extension Test data seem to support this hypothesis. It is those items which are most easily correctable—age (where both a write-in and a FOSDIC entry is requested), household relationship (with a possible write-in), sex (imputable from name), and contract rent (both a write-in and FOSDIC entry)—which proved to be significantly affected by the type of census procedure.

However, when similar comparisons are made for the sample information, the differences in data completeness are not as pronounced nor as easily explained. The conventional enumerator may not be in a disadvantageous position at this stage of enumeration since he begins the sample data collection with a blank questionnaire—one which requires no prior editing and correction for inconsistencies. Whatever may be gained in completeness through the structured editing of the very complex long form questionnaire under the Decentralized census procedure may also be gained in the conventional operation by eliminating the need to determine what information has or has not been supplied by the respondent.

The comparison of the completeness of data may also reflect differences in the checks made during the censuses and the standards set under the two census techniques. Appendix C outlines the steps involved in the crew leaders' final review¹⁹ of the questionnaires before they are forwarded to the district office. The differences affecting short form completeness appear minimal, but the difference in the level of acceptance for the long form questionnaires is startling. Twice as many incomplete long form questionnaires must be found in a decentralized enumerator's assignment than in a conventional assignment before the assignment fails the final review. This difference may have been based on the assumption that a decentralized assignment would be about twice the size of a conventional one.

TABLE G

District office	Mail return rates for occupied households
Average for Mail Test Areas	89.2
RICHMOND	94.3
JONESBORO	87.5
MANKATO	95.8
TALLAHASSEE	80.7
EUGENE	87.5

¹⁷Although an allocation rate for "basement" was published, based on sample units, it is not included here as a sample item but as a 100 percent item.

¹⁸Based on a sample of 163 conventional assignments as part of a time study sponsored by the Field Division.

¹⁹The crew leader (the enumerator's immediate supervisor) had to perform this review on the enumerator's work and verify its quality before the enumerator could be paid.

Whether this assumption was valid is not known, but if the two types of assignments were comparable in size, the acceptance of more incomplete long forms by the decentralized crew leaders would appear to increase the burden of the mail office quality control staff over that of the conventional since the final criteria for acceptance of long form questionnaires was the same under both census procedures (see appendix D). The Quality Control operation²⁰, however, introduces a procedural difference in the criteria for short form completeness! No evidence is available which would help to determine exactly what effect, if any, the various completeness checks had on the final data, but it is generally felt that such checks have little impact. Most are based on very small and uncontrolled samples of questionnaires, and are easily manipulated to keep them from failing many ED's or assignments, especially when census personnel are under pressure to complete their work and to close the office. The person having the most influence on the completeness of the data remains the enumerator, whether conventional or decentralized.

VII. Census Costs

A. BACKGROUND AND METHODOLOGY

An important consideration for post-1970 Censuses is whether extending the mail census procedure to less densely populated, more rural areas would add appreciably to the overall cost of the census. To the extent that the mail area costs of the 1970 Census are a function not only of the procedure used but of the type of area enumerated, it would be speculative to make cost projections for mail extension to semirural areas from the urban experience, or to make decisions on such extensions from comparisons between the total mail versus the total conventional costs. A cost comparison of mail and nonmail methods based on the five pairs of offices involved in this extension test, although restricted in the inferences that can be made regarding the larger population (the entire conventionally enumerated area in 1970), allows us to gain some insight into the actual cost relationship between the two procedures when used in highly similar areas.

The total costs shown in table 9 were derived by applying the standard unit costs paid by the Bureau for the various census operations to the actual number of questionnaires, postal blue cards, etc., and from the Bureau's payroll and administrative records for each of the 10 offices. The factors included in the total cost cover all aspects of the census operation, from the development of an Address Coding Guide for one city in each of three of the five mail offices²¹, the rental charge for office space, all postage and postal operations, including PEPOC²², to the closing of the district offices and the releasing of all temporary personnel. The various cost components and their dollar amounts are not included in detail in this report but appear in the 1970 Census Preliminary Evaluation Results Memoranda Series as report number 13.

²⁰The final check for required information, conducted in the district office.

²¹Jonesboro (West Memphis), Eugene, and Tallahassee.

²²Jackson and Panama City districts.

B. RESULTS

No significant difference could be detected in the cost of taking the census between the mail offices and the conventional offices. The cost of enumerating a housing unit and of enumerating a person in each of the mail test offices and their conventional control offices is shown in table 9. The inconsistent unit cost relationships between the members of the five pairs do not provide a basis for concluding which census method, when used in semirural areas, is the more costly, or whether the difference in the costs are important. This limited result, however, is still illuminating since it shows that the 1970 mail operation did not automatically raise the enumeration costs above those accrued under the conventional procedure.

Table 10 is offered mainly as an exhibit to show the relationship between the field and office costs of the two census techniques. The overall cost per unit enumerated in each of the 10 areas has been divided into its two main components—the cost per unit attributable to the field operations, and the unit cost accrued as a result of office operations.

VIII. Coordination and Control

A. BACKGROUND AND METHODOLOGY

The extent to which mail census procedures would be used in 1970 was based in part on administrative concerns. The more complex mail enumeration technique demands the control of several simultaneous census operations, the successful completion of one phase often dependent on another. The mail procedures had been developed and tested, and the coordination between the field, district office and post office staff observed with the more urban, metropolitan areas in mind. Since the five decentralized offices in this study did not meet the criteria considered necessary to originally be designated as mail, it was not known how the specialized mail operation would function in such semiurban areas. As it turned out, using procedures that were developed with urbanized-type areas in mind did create certain problems in the five experimental mail offices. The problems were of a different type and probably more serious than occurred in the five paired conventional offices, or for that matter in the regular mail offices. It is instructive to scrutinize the experiences in the five mail offices to ascertain whether such problems are inherent with the use of mail operations, or whether they were due to the use of the specific procedures and could be eliminated by modifications in the procedures. This section is concerned with such an examination, in particular with the problems faced by the district office supervisory personnel and the steps they had to take to overcome them (frequently with great ingenuity and resourcefulness). It appears that a number of modifications in procedures, most suggested by field personnel, would largely eliminate the difficulties and create a more smoothly-flowing operation. The problems and proposed solutions follow.

The information reported in this section comes primarily from the final narrative reports required in conventional offices of the District Manager, the Field Supervisor, and the Administrative Clerk, and in decentralized offices of the District Manager, Field Supervisor, and the Office Supervisor. Related information from post office personnel was obtained from a report by Mr. Schmeing (the Census Bureau's liaison with the Postal Department) on meetings he held after the census with postal supervisors in the Eugene and Jonesboro districts.

B. RESULTS

Neither the mail nor conventional offices met their scheduled closing dates, but the mail offices came closer.

As illustrated in table H, every mail office, with the exception of Eugene, concluded its operation with fewer extra days over the expected closing date than its conventional counterpart. In defense of the Eugene office, its expected closing date, set by Field Division and based primarily on the precensus estimates of population in the area, was quite a bit stricter for some reason when compared to the closing date scheduled to be met by the Lacey office. The other four mail offices were allotted at least 13 working days longer to conduct the decentralized operations than were their conventional control offices, but Eugene was given only 8 working days longer than the Lacey office. No reason for this inconsistency could be found, but it seems that Eugene should have been allowed at least 5 or 6 more working days before being charged with not meeting its closing date.

A word should also be said about the fact that Mankato closed 4 working days ahead of its expected date. According to the final reports from supervisory personnel, the Mankato staff was under constant pressure from the Regional Technician and the regional office to operate at least a week ahead of schedule.^{2,3} This action on the part of the regional office staff may have been in violation of the directive quoted in section I of this report. According to the Office Supervisor, the Regional Technician "was anxious to have us ahead of schedule and constantly pushed us to start every process ahead of time, no matter how disrupting this was to the process currently underway. The calendar allowed much more time than the regional office apparently wanted to give us. We were told to follow the calendar, but yet were expected to finish ahead of its date."

TABLE H

District office	Expected closing date	Actual closing date*	Difference between expected and actual closing date, in number of work days
MAIL AVERAGE			+6.6
Conventional average			+12.4
RICHMOND	May 27	June 5	+7
Van Wert	May 7	May 28	+15
JONESBORO	June 3	June 10	+5
Jackson	May 13	June 2	+14
MANKATO	May 27	May 21	-4
Sioux City	May 8	May 8	0
TALLAHASSEE	June 3	June 22	+13
Panama City	May 13	June 17	+25
EUGENE	May 27	June 12	+12
Lacey	May 15	May 27	+8

*The closing dates shown are those reported by the District Managers as the dates when all census operations were completed. They do not necessarily coincide exactly with the "official" dates on which clearance wires were sent from Washington.

^{2,3} In fact, Mankato was the first of all the decentralized district offices in the United States to complete its work, and did so a week earlier than any other decentralized office in the St. Paul region.

For the most part, the problems, delays, and complaints of the conventional office staff were not directly attributable to the conventional census-taking technique.

The problems reported by the conventional staff were, in general, the same problems which all census staff, regardless of procedure, had faced to a certain degree. One office, Van Wert, attributes its delay in closing to making a special effort to clean up problems with the enumeration of migrant camps. (The Van Wert Field Supervisor went so far as to suggest the elimination of the Special Place operation and the handling of all such places by regular enumerators.) Another office complained of the "bottleneck" which developed during the last 2 weeks of operation (Sioux City).

Sufficient manpower was recruited and maintained throughout the census operation. Four of the five offices complained of delays and pressure in crew leader and enumerator selection as a result of trying to work through the county chairmen and political organizations. They were of the opinion that, for the number of persons actually referred and hired through the referral system, the time and effort spent were not worth it. Finding qualified members of minority groups proved difficult in both the Panama City and Lacey areas, but only Van Wert reported some hiring problems near cities due to the low wage scale.

Delays in the shipment of supplies to the offices, plus sickness and severe weather, caused some schedule problems. Lacey and Panama City—the two most sparsely populated conventional offices—found many of their ED maps "inadequate, antiquated, and sometimes useless." Panama City goes on to report that it replaced such useless maps by local purchase so that the roads and highways would be shown. Some complaints about the ED delineation and field-splitting^{2,4} in these two offices were also voiced. The evaluation staff would like to concur with these complaints. Much time and effort was spent during field work on the coverage phase of this study in attempting to locate ED's and ED boundaries. The county maps were especially bad, and those for very small towns completely misleading. They were often maps on which streets envisioned by some city planner for construction in the distant future were depicted as already existing. But this problem was not related only to the conventional census. Most prelisted areas in the mail offices had similar map and boundary problems.

The suggestions for improvement from the staff of the conventional offices are too numerous to mention here, many of them concerning the manuals, the office arrangement and administrative aids. Three of the five offices did insist that duplicate copies of all payroll forms be kept in the District Office after the originals have been forwarded to the Regions. Under the current system they had no record of payrolling. Along this same line, the Jackson Administrative Clerk reports that she used post cards to notify enumerators when their payrolls had been sent to the Regional Office for processing—and that her notices were well received by the enumerators.

Panama City initiated a procedure to help the enumerators with callbacks. The enumerator left a slip of paper with her name and telephone number at the household, asking for the occupants to call and make an appointment for her to return. The Panama City District Manager reports that this system was used to definite advantage in certain areas of his district. Although it is

^{2,4} Field-splitting is the division of a single ED into two or more ED's during enumeration.

not known if Lacey actually used the procedure, the Lacey District Manager suggested that the enumerators leave self-addressed envelopes so that the questionnaires could be mailed to them, thus reducing the number of callbacks.

The Panama City Administrative Clerk believes that her district should have been a "mail-out/mail-back" area. There was much confusion on the part of the residents of the district as to their status, and many called the office thinking they had been missed when an enumerator had not called on them by April 2. Many sent their questionnaires in to the District Office by mail (unaddressed, of course)—thus the suggestion that space be provided on the inside of the form for the respondent's current address. (It is believed that this would be helpful for many reasons, both during the census-taking and after, with the many post-census uses of the data, i.e., evaluation, current survey sampling, and age searching.)

The major problems faced by the decentralized office and field staffs can be directly attributed to mail procedures designed for use in areas more urban in character than the test areas.

Many of the same complaints and suggestions made by the conventional area staff were also voiced by the decentralized staff—payrolling problems, inadequacy of crew leader pay, inconsistencies between the manuals, lack of reimbursement for enumerator's mileage, and inaccurate and obsolete ED maps. But the major problems reported by the decentralized test offices relate to the mail-census prelisting and postal corrections operations and to the interaction of those operations with the enumeration of special places (e.g., hotels, hospitals, college dormitories).

As stated in section I, evidence from past studies indicates that mail techniques provide a basis for improving the quality of census data. These studies are being repeated in 1970, and if they confirm the previous reports, extension of mail methods into most of the United States would, on theoretical grounds, appear to be advisable. The results of the analyses in this report support the view that the mail methods are feasible in semirural areas of the type tested, but that the procedures used in 1970 have several major weaknesses which must be overcome in future censuses. The fact that these test offices were able to complete their assignments, in view of the unexpected and often massive problems encountered was due in large part to the dedication and diligence of the supervisory personnel.

Described below are the major mail census problems encountered and some recommendations for avoiding them in future censuses. As stated earlier, this information was compiled from the reports of census and postal supervisors. Pertinent sections of these reports have been excerpted in order that the reader may obtain firsthand information from the personnel involved.

C. PROBLEMS AND RECOMMENDATIONS

1. Prelisting Problems

The prelisting of rural mailing addresses for the 1970 Census was grossly inadequate for both the postal corrections operations and for nonresponse follow-up enumeration. There were three basic weaknesses with the prelisting operation:

- a. First, there appears to have been little coordinated agreement between the Census Bureau and the post offices regarding what constitutes a complete and unique mailing address for a noncity delivery living quarters.

The prelisters' instructions stipulated that each unit should be listed by its mailing address which must consist of one of the following:

1. Street name and house number
2. Occupants' name (or vacant) and route and box number
3. Occupants' name (or vacant) and post office lockbox number
4. Occupants' name (or vacant) and Star Route or General Delivery

An examination of the prelisted address registers reveals, on a rather large scale, many listings other than the types described above. In fact, for some ED's an address such as one of the above is a rare listing indeed! Many such listings were found for areas in which the post offices did not enforce their own regulations about how postal receptacles shall be displayed and labeled²⁵, whereas others were the result of poorly supervised or poorly trained listers. When these listings were later submitted to the post offices for the casing operations, the postmen were unable to relate them to their patrons in order to identify census omissions and address changes.

- b. A second problem was caused by fall prelisting. Only the Tallahassee office was responsible for the prelisting of its ED's and addressing the questionnaires. The other districts were listed in the early fall of 1969. It was found that many of the listings which had been made in the fall ceased to exist as valid mailing addresses by the start of the census, due to movers. Since an occupant's name is an integral part of the mailing address in rural areas, household moves during the many months subsequent to the fall listing had reduced the accuracy of the mailing list by the time the postal checks began, and also caused considerable location problems for the nonresponse followup enumerators.

Mr. Schmeing's comments following the Eugene Meeting:
"It was generally agreed that if the Post Office Department (or Corporation) were to be more persistent with patrons of Rural and Star Delivery Routes and cause them to display both their name and box number, fewer difficulties would be encountered. This would not, however, eliminate the necessity for occasional personal inquiries at residences to verify the route number and box number."

Mr. Schmeing's comments following the Jonesboro Meeting:

"There was a need for descriptive type of addressing in the rural areas because many of the rural receptacles were without any identity whatsoever. Those that were identified seldom had both the name and the box number, usually the name only. The postmasters and supervisors admit that they do not press this regulation but leave it up to the rural carriers to manage. The extent of this infraction will vary from approximately 10 percent of no identity in the Jonesboro Post Office area to approximately 30 percent in the area of the Paragould Post Office."

²⁵This fact was acknowledged by the Post Office Department during a post-census meeting which Mr. J.W. Schmeing held with the Eugene, Oreg. postal supervisors on August 11, 1970, and again later with the Jonesboro, Ark. postmasters and supervisors on September 18, 1970.

- c. A third prelist problem affected only two of the five test offices. All of the ED's had been prelisted for the Mankato and Richmond districts—a fact of which the district office staff was unaware—yet their manuals contained the usual lengthy references and instructions pertaining to computer-generated census aids (e.g., district office master maps, tract and block directories, and ED directories). The Richmond District Office Manager reported that he delayed the start of some census operations awaiting receipt of the above mentioned materials, only to later find that his office would neither need nor receive them.

The reports of the District Office personnel contain the following comments regarding the prelisting:

The Richmond Field Supervisor: *"Our suggestions for improving the census include having the listing operation just prior to taking the census. Also, the operation should be more closely supervised than this one. We found that each crew leader had a different idea about listing. For instance, one crew leader's area listed all vacant lots as new additions. Another crew leader's area listed separately all persons living together in a single dwelling that were not of the same family or were unrelated."*

The Mankato Field Supervisor: *"Our listing was done in the fall. In talking to listing enumerators and crew leaders I find it was done under pressure. There are errors in numbering, errors in identification of special places, and duplications. All these things could have been corrected before addressing the questionnaires. They were not corrected and our enumerators spent hours correcting these errors later. We strongly urge the use of commercial lists and a post office list, with the final list compiled by the District Office. Proper preparation of the address registers would eliminate much of the trouble we had in the field."*

The Mankato Office Supervisor: *"If the same listing procedure is used, it should be done more accurately and not rushed. Consideration should be taken of the miles to be covered in rural areas. Washington officials should be required to list in a rural area before they draw up time tables. More time should be spent on the listing process and more supervision given by crew leaders. This would save much time and money on the postal corrections and later operations."*

The Jonesboro Field Supervisor: *"I would suggest that spring listing be used in rural and semirural areas instead of fall listing. Mailing addresses change with different occupants."*

The Eugene District Manager: *"The fall listing problem was handled solely through extra hours put in by crew leaders and enumerators who straightened the listing out to the best of their ability."*

In addition to the problems reported by the District Office personnel, Mr. Schmeing made the following observations after his post-census meetings with the Eugene and Jonesboro postmen:

After the Eugene meeting:

"Our [census] addresses for rural routes were considered as very bad. They [the postal supervisors] reported that it was necessary for them to work with their rural carriers and to provide special attention to an additional 30 or 40 percent of the census forms for rural families in order to cause them to be delivered to the intended family at the proper dwelling location, rather than 'Nixie' them and complete blue cards. The names of the families enabled them to determine the intended addresses in some instances. They also advised that the nonexistent addresses for a rural route to which the census forms were addressed proved to be fitting for a different adjacent rural route. This indicates that the prelisters would not always know when they had left the area served by one rural route and entered that of another. Copies of the rural route descriptions can usually be obtained and when used in conjunction with a map of the area will serve to alert a person who is not familiar, by showing where rural routes and other services intersect. It was generally agreed that if the Post Office Department were to be more persistent with patrons of rural and star delivery routes and cause them to display both their name and box number, fewer difficulties would be encountered. This would not, however, eliminate the necessity for occasional personal inquiries at residences to verify the route number and box number."

"Postal personnel are of the opinion that many of the descriptive type of addresses used were not sufficient to cause them to make a definite determination. Many of such descriptions were directed principally toward describing the looks of the building, rather than the location of the dwelling, for example; 'rural route No. 1, white house with green shutters and red roof.' The carriers must relate the address on the mailing piece with a dwelling location on their route while they are in the office sorting their mail. They cannot visualize the color of each house on their route and generally have no concern as to whether the color of the roof or the shutters is one color or another. He is not likely to take the mailing piece with him on his route to look for such a dwelling. When listing a descriptive type of address the name of the street or road is essential, accompanied by the name of the family and the route number, if on a rural or star route."

After the Jonesboro meeting:

"City delivery carriers experienced a considerable amount of the descriptive type of addressing and were compelled to 'nixie' most of these census forms bearing addresses such as 'the green house between the white frame house and the brick house on 4th St.' If the prelisters could not find the house number and could not determine what the number should be by observing the numbers on either side, it would have been better to list 'house in between 101 and 109 W. Main St.' instead of a descriptive type of address."

2. Postal Corrections

The problems associated with the postal corrections operations for the test offices are almost too numerous to list and could easily be the subject of a separate report. Here, we will only attempt to describe the most troublesome problems.

a. Postal personnel were given insufficient training and instructions.

Possibly the best evidence of confusion among the postal employees who participated in the correction operations is the fact that approximately 80,000 blue cards were prepared for the five test offices. It is almost inconceivable that the ED prelisters made so many omissions. Although many of these cards were probably prepared for legitimate misses, and still others were prepared in lieu of poor census listings which the postmen had to "NIXIE," probably the vast majority of blue cards were created due to misunderstandings about the casing operations.

It is our belief that if these blue cards did represent actual omissions from the prelist ED's, the coverage study would have revealed unusually high missed rates (despite the postal corrections) and many of the evaluation listings would have been matched to blue card adds. Neither of those assumptions is substantiated by the coverage study.

The following reports document inadequacies in the postal training and instructions:

From the Report of Mr. Robert B. Voight (Special Assistant to the Assistant Director for Research and Development) of May 19, 1970 After Visiting the Eugene Office:

"The workload of this office covered about 750,000 people in the 13 counties along the coast of Oregon in which the mail-out/mail-back procedure was used after prelisting. The performance of the post office was rather poor. Many local postmasters were unaware of the procedures, did not know what a blue card was, and made little attempt to deliver the mailing pieces where the address was not completely accurate."

"This office received 29,000 blue cards (about 13 percent of the listings) and almost 10,000 returned by the post office marked as 'duplicates' or 'no such address.' Despite these complications the District Manager expected to be completed in the field by May 15 and close his office on May 27. Because of poor addresses about 1,500 households will be allocated only to the ED in which the post office is located."

From the Eugene District Manager's Report:

According to the Eugene District Manager, when postmasters called the District Office for clarification of their instructions, he referred them to a supervisor in the Post Office Regional Office in Seattle as he had been directed. The letter below indicates the kind of clarification provided by the Post Office Regional Office.

U.S. POST OFFICE [town], Ore. [zip code] April 3, 1970	
The Eugene Ore. Census Office	
The enclosed forms are undeliverable by us. Mr. [P.O. Regional Supervisor] has informed us that we should return them to you, in hopes that you can get them delivered.	
Sincerely,	
_____ Postmaster	
by _____	
_____, Clerk	

"Because of the late return of blue cards from the time of delivery check, all postmasters were contacted to determine if they had sent in their blue cards. At this point, we determined that a number of postmasters in the District did not even know what a blue card was."

"We received far more blue cards from the time of delivery check than estimated. (Total Blue Cards Received from Time of Delivery Check = 4,421.) A portion of these cards resulted from the fact that a number of post offices didn't undertake a casing check—only a time of delivery check."

From the Jonesboro Office Supervisor's Report:

"My greatest difficulty was experienced during the Postal Corrections operation. Our District Office expected around 5,000 blue cards yet received over 15,000. Mistakes during fall listing contributed to a lot of the problems but I feel the majority of the postmasters in our district were not fully aware of what their job was."

"Many blue cards had only a lockbox and/or general delivery address which could not be properly field-checked. This resulted in duplication of listings in the address register."

From the Jonesboro District Manager's Report:

"Speaking of the post office and the people involved, I wish to say that we had excellent cooperation and found that all wanted to do a good job for their community, for their area, and for their country. We found that there was a definite breakdown of communication in the pamphlets that were given by the Census Bureau to the post offices."

b. Direct contact is needed between District Office staff and postal supervisors or postmasters, but according to Washington specifications.

A number of District Office personnel recommended closer contact with the postal employees in their districts. In at least one office direct contacts were made between the census staff and local postmen, resulting in the resolution of some problems but the creation of others.

From the Jonesboro District Manager's Report:

"...First of all, I highly recommend a sectional meeting of postmasters and supervisors. For rural post offices, they should have ED maps for their post office service area. On our own, we had one test area at Corning, Arkansas, Post Office, which had city and rural area. Here where the ED maps were given and the postmaster had an understanding as to their use, we ran into a minimum duplication, no deletions and had what we thought, was very quality coverage of the census. We were able to enter the blue cards in our address registers with ease, which greatly facilitated the follow-up enumeration."

"Speaking of mail, one important point that I would like to make is that all mail returned on Bureau of the Census operations from post offices, all questionnaires, etc., should funnel back to the district office. We uncovered several situations where a post office was mailing items back to Jeffersonville. Usually, these were NIXIES, according to the instructions as the postal worker understood them; blue cards and questionnaires for vacant houses. Frequently, the NIXIE was a questionnaire addressed to a vacant residence. The post office has a different definition of a nixie than what the Census Bureau had. Along with this, the post offices sent blue cards to Jeffersonville, instead of to the district office. Let the local census office decide what should be mailed back to Jeffersonville."

"We also reasoned out and found it advantageous to have the post office sort all blank questionnaires that were marked vacant and undeliverable, (such as no mailbox for one), sort in with the completed questionnaires so that the enumerator could save time and money in edit check with the address register. While a check was made with this, it helped the enumerator greatly in trying to follow up a nonresponse."

While the above statements indicate that the Jonesboro office contacts with postmen did alleviate some problems, please note that undeliverable (NIXIE) questionnaires and questionnaires for vacant units were intercepted by the Jonesboro office contrary to census procedures. The reason for the census procedures is clearly demonstrated by the following statement from the final report by that same District Manager!

"We had two enumerators in Jonesboro that turned in an abnormal number of vacancies. A field check was ordered. One enumerator showed 56 vacancies. The field check showed 42 out of the 56 vacancies were occupied. The other enumerator showed 70 vacancies. 34 out of the 70 were occupied."

c. Revised procedures are needed for assigning rural postal adds to census ED's.

Units which were added by the post office in areas not covered by the Address Coding Guide were assigned to ED's by requesting the postmen to copy onto each blue card the ED number shown on the questionnaire for a nearby unit. This procedure proved unsatisfactory for adds made in areas where the census listings covered several rural routes and where mail was not delivered to the residences.

Some indication of the problems this caused was described earlier in Mr. Voight's report (page 14). Additional evidence is given below.

From the Jonesboro District Manager's Report:

"During the census operation, we initiated form letters and mailed them to all the post offices and told them to write or call us if they had any questions or did not understand our instructions. We were deluged with calls from about 170 post offices. Again, on rural post offices, many of them do not have any delivery operations outside of the post office. Everyone comes into the post office to pick up his mail, either at general delivery or in a box. Realizing that, then you can see how frustrating that is to a postmaster or supervisor who is trying to put an ED number on a blue card."

"It is suggested that careful thought be given to a pre-census operation conducted by the post office using color coded cards and ED maps in getting the geographic location of patrons, using post office boxes (being aware that more than one household frequently uses a post office box in a rural area) and general delivery patrons. This operation can materially cut down on the huge blue card operation that we encountered. For rural post offices, they should have ED maps for their service area."

From the Jonesboro Field Supervisor's Report:

"A pre-census postal operation consisting of a card for every post office box number and every general delivery patron of post office should be instituted. A card to be made up to provide information as to the number of family units or individuals receiving their mail at that box number or general delivery. A card also should show the respective geographical description of each mail recipient's living quarters. In some cases a questionnaire addressed to 'Occupant-General Delivery—such-and-such a town' is completely meaningless unless a serial number appears on the ED map. The returned questionnaire may be in the proper ED or not, and there is no way of ascertaining the correct ED. If a questionnaire of this type fails edit, a real problem is generated in locating the person by the follow-up enumerator."

"How can anyone tell what the nearby household address labels are for a post office box number?—Or for a general delivery patron for the matter? Map spot number might be meaningful if the post office had an ED map for the area."

"Distinguishing features—How about telling us in what county this mail patron resides? The state is different in some peripheral areas, but the name of the county resolves this. In our area we have Missouri post office addresses in at least four of our counties in Congressional District No. 1. However, a county name locates the residence location. Interstate addresses are another story. Here we have a particular town and the physical location of the living quarters are in a different county from the named town rural route."

From the Tallahassee District Manager's Report:

"One of their major deficiencies which resulted in future difficulties was their massive use of blue cards which were not completed properly. There was no way for our enumerators to follow up a blue card since the addresses were so vague and no ED numbers were included on the cards."

From the Mankato Office Supervisor's Report:

"Blue cards should have a space for postmaster to fill in the township where address is located. This would help the office to add rural addresses to the proper register."

3. Special Place Problems

The District Office reports described several problems concerning the enumeration of special places, usually pertaining to the unexpected amount of special place enumeration found to be needed. Most of the mail offices reported substantial duplication of special place addresses which appeared on both the regular unit white pages and special place yellow pages of the registers. It was generally acknowledged that the prelisters did not understand the differences between special places and regular housing.

From the Richmond District Manager's Report:

"The special place operation needs to be studied more thoroughly. The fall listing was ambiguous and overlapped with the special place operation."

From the Eugene District Manager's Report:

"Gross underestimation of special places, errors in fall listing, and unforeseen problems encountered with post offices put this office 2 weeks behind schedule and in excess of the office authorizations."

From Mr. Voight's Report After His Visit to Eugene:

"Special places presented quite a few problems here. They were furnished a listing of some 350. They actually accounted for 1,840 due to the existence of many trailer parks and small motels. This presented an almost overwhelming enumeration load but they met the emergency with additional enumerators. They found three additional military installations which were not listed and arranged for the enumeration of these places. Migratory worker camps and hippie communes also presented enumeration difficulties."

From the Mankato Field Supervisor's Report:

"Special Place Operation: A clear understanding by the lister of what is a special place would have saved hours of work sorting out duplication."

Trailer Courts: *As many as possible should be taken out of special place. Very hard for special place people who have large areas to cover to go back many times.*

Priest's Quarters: *Unless a large convent, all should be enumerated in the regular way—almost 100 percent duplication here.*

Special Place Clerk: *Needed at least three clerks to do work assigned to this area. Should also come on duty early to handle control card operation.*

Special Place Crew Leader: *Geographically very hard to supervise whole area.*

College Lists: *Use current lists even if the operation is held up 10 days."*

**Table 1. Estimates of Missed Space Housing Unit Error Rates Before Addition of Units by
PEPOC and the Supplemental Forms Operation**

MAIL EXTENSION TEST

District office	Total units			Occupied units			Vacant units ¹		
	Number enumerated	Number missed	Percent missed	Number enumerated	Number missed	Percent missed	Number enumerated	Number missed	Percent missed
MAIL AVERAGE.....			2.55			1.71			16.32
Conventional average...			2.29			1.39			8.77
RICHMOND, IND.....	908.50	9.50	1.05	856.50	6.00	0.70	52.00	3.50	6.73
Van Wert, Ohio.....	1,293.50	9.00	0.70	1,189.00	2.00	0.17	104.50	7.00	6.70
JONESBORO, ARK.....	972.50	41.00	4.22	915.00	26.00	2.84	57.50	15.00	26.09
Jackson, Tenn.....	989.50	27.67	2.80	922.33	22.33	2.42	67.17	5.33	7.94
MANKATO, MINN.....	947.50	9.00	0.95	901.50	7.00	0.78	46.00	2.00	4.35
Sioux City, Iowa.....	1,226.33	15.00	1.22	1,118.83	8.00	0.72	107.50	7.00	6.51
TALLAHASSEE, FLA.....	1,117.80	34.70	3.10	1,055.30	23.80	2.26	62.50	10.90	17.44
Panama City, Fla.....	984.00	28.50	2.90	828.50	19.50	2.35	155.50	9.00	5.79
EUGENE, OREG.....	1,661.75	56.83	3.42	1,566.59	31.16	1.99	95.16	25.67	26.98
Lacey, Wash.....	2,284.07	87.54	3.83	1,912.44	24.63	1.29	371.63	62.91	16.93

NOTE: Numbers shown are sample numbers. Fractions occur because some segments had to be subsampled.

¹Missed vacant unit rates shown here are extremely unreliable due to their relatively small bases and the high degree of clustering within sample segments.

**Table 2. Estimates of Missed Space Housing Unit Error Rates After Addition of Units by
PEPOC and the Supplemental Forms Operation**

MAIL EXTENSION TEST

District office	Adjusted missed space Housing unit rate ¹			PEPOC and Supplemental forms imputation rates ²		
	Total	Occupied	Vacant	Total	Occupied	Vacant
MAIL AVERAGE.....	2.46	1.62	16.27	0.09	0.09	0.05
Conventional Average.....	1.61	0.73	7.95	0.68	0.66	0.82
RICHMOND, IND.....	0.97	0.62	6.73	0.08	0.08	-
Van Wert, Ohio.....	0.61	0.08	6.66	0.09	0.09	0.04
JONESBORO, ARK.....	4.16	2.78	26.03	0.06	0.06	0.06
Jackson, Tenn.....	1.18	0.80	6.24	1.62	1.62	1.70
MANKATO, MINN.....	0.91	0.73	4.35	0.04	0.05	-
Sioux City, Iowa.....	1.10	0.58	6.51	0.13	0.14	-
TALLAHASSEE, FLA.....	2.90	2.06	17.27	0.20	0.20	0.17
Panama City, Fla.....	1.57	1.17	3.44	1.33	1.18	2.35
EUGENE, OREG.....	3.37	1.94	26.98	0.05	0.05	-
Lacey, Wash.....	3.61	1.04	16.92	0.22	0.25	0.01

¹Error rates from table 1 have been decreased by the rates of imputation shown for PEPOC and Supplemental forms to arrive at the adjusted rates shown here. ²Computed from counts obtained from the Sample Analyzer Program, run from the 1st count census tapes. Only the Jackson, Tenn. and Panama City, Fla. District Offices were included in the PEPOC operation. Imputation rates for the remaining District Offices consist only of Supplemental form additions.

Table 3. Distribution of the Standard Deviate I^1 for all Enumeration Districts
Containing 40 or More Housing Units

MAIL EXTENSION TEST

I value	MAIL AVERAGE	Conven- tional average	RICHMOND	Van Wert	JONES- BORO	Jackson	MANKATO	Sioux City	TALLA- HASSEE	Panama City	EUGENE	Lacey
ED's with 40+ units			330	539	537	550	531	775	383	359	640	925
-4.00 or less.....	0.03	0.03	-	-	-	-	-	-	0.15	0.17	-	-
-3.50 to -3.99.....	0.02	0.03	-	-	-	-	-	-	0.11	0.11	-	0.05
-3.00 to -3.49.....	0.12	0.13	0.24	-	0.07	0.29	-	0.05	0.21	0.11	0.06	0.19
-2.50 to -2.99.....	0.50	0.63	0.77	0.50	0.42	1.04	0.13	0.12	0.84	0.73	0.35	0.77
-2.00 to -2.49.....	1.73	2.12	1.73	2.17	1.50	2.52	1.56	1.20	2.13	2.43	1.73	2.29
-1.50 to -1.99.....	4.69	5.46	3.96	5.23	4.11	5.64	5.46	4.84	5.04	6.59	4.87	5.01
-1.00 to -1.49.....	9.35	10.47	8.62	9.76	9.10	10.17	10.17	9.19	10.52	13.58	8.34	9.66
-0.50 to -0.99.....	16.54	14.36	18.21	13.89	16.18	14.00	17.57	14.03	16.60	14.95	14.11	14.92
-0.00 to -0.49.....	19.81	19.04	17.07	22.25	21.32	16.52	21.04	18.05	21.58	18.73	18.03	19.64
0.00 to 0.49.....	19.19	15.48	19.27	14.33	19.12	15.53	17.79	17.23	18.74	12.65	21.01	17.68
0.50 to 0.99.....	13.30	12.38	13.36	12.16	13.93	12.53	12.04	12.86	10.41	12.70	16.77	11.65
1.00 to 1.49.....	8.08	9.00	9.05	9.73	7.40	8.07	7.85	10.39	6.93	7.20	9.16	9.65
1.50 to 1.99.....	3.90	5.51	3.93	6.08	4.28	5.12	3.99	6.27	3.59	4.85	3.73	5.26
2.00 to 2.49.....	1.80	2.67	2.17	2.85	1.71	2.52	1.52	3.05	2.36	2.80	1.26	2.11
2.50 to 2.99.....	0.69	1.13	1.25	0.79	0.53	1.48	0.43	1.47	0.78	1.41	0.45	0.47
3.00 to 3.49.....	0.20	0.56	0.36	0.07	0.25	1.43	0.27	0.73	-	0.44	0.12	0.11
3.50 to 3.99.....	0.05	0.33	-	-	0.09	1.16	0.18	0.25	-	-	-	0.24
4.00 or more.....	-	0.66	-	0.19	-	1.99	-	0.26	-	0.56	-	0.30

$I^1_i = \frac{\bar{x}_i - \bar{X}_i}{\sigma/\sqrt{h}}$, where \bar{x}_i = average household size for sample units in the i^{th} ED,
 \bar{X}_i = average household size for all units in the i^{th} ED,
 σ = the standard deviation on household size in the i^{th} ED, and
 h = the number of sample units selected in the i^{th} ED.

Table 4. 1970 Census Population Substitution and Allocation Rates for 100 Percent Items

MAIL EXTENSION TEST

District office	Substi- tution rate	Persons with one or more allocations	Allocation rates				
			Household relationship	Sex	Color or race	Age	Marital status ¹
MAIL AVERAGE.....	2.62	5.42	1.62	0.77	1.12	1.89	1.47
Conventional Average.....	3.53	7.27	2.30	1.05	1.45	2.68	1.65
RICHMOND, IND.....	1.82	4.53	1.43	0.63	0.85	1.57	1.18
Van Wert, Ohio.....	1.15	5.37	1.71	0.74	1.10	1.84	1.23
JONESBORO, ARK.....	2.32	6.39	2.01	0.91	1.20	2.35	1.82
Jackson, Tenn.....	4.85	10.52	3.66	1.61	1.97	4.02	2.42
MANKATO, MINN.....	1.78	3.66	1.05	0.53	0.80	1.10	0.98
Sioux City, Iowa.....	2.37	5.85	1.81	0.82	1.18	2.05	1.31
TALLAHASSEE, FLA.....	3.13	7.26	2.08	0.99	1.68	2.60	2.04
Panama City, Fla.....	5.67	7.70	2.34	1.07	1.50	2.87	1.84
EUGENE, OREG.....	4.05	5.24	1.52	0.77	1.08	1.82	1.33
Lacey, Wash.....	3.62	6.91	1.96	1.00	1.48	2.63	1.45

¹Based on total population 14 years of age and over.

Table 5. 1960 Census Population Allocation Rates for 100 Percent Items

MAIL EXTENSION TEST

District office	Persons with one or more allocations	Household relationship	Sex	Color or race	Age
MAIL AVERAGE.....	2.33	0.53	0.34	0.32	1.09
Conventional Average....	2.22	0.54	0.33	0.33	1.04
RICHMOND, IND.....	2.48	0.60	0.29	0.33	1.20
Van Wert, Ohio.....	1.69	0.45	0.22	0.28	0.68
JONESBORO, ARK.....	2.04	0.48	0.39	0.32	0.88
Jackson, Tenn.....	2.33	0.60	0.39	0.28	1.06
MANKATO, MINN.....	1.66	0.46	0.24	0.29	0.64
Sioux City, Iowa.....	2.28	0.59	0.26	0.34	1.06
TALLAHASSEE, FLA.....	3.38	0.61	0.54	0.36	1.76
Panama City, Fla.....	2.39	0.56	0.51	0.37	1.27
EUGENE, OREG.....	2.09	0.50	0.22	0.30	0.97
Lacey, Wash.....	2.41	0.52	0.27	0.37	1.15

Table 6. 1970 Census Allocation Rates for Selected Sample Population Items

MAIL EXTENSION TEST

District office	Persons with sample information ¹	Nativity ²	Year moved in ³	Farm-nonfarm residence ²	Highest grade completed ⁴	Level of school ⁵	Family income ⁶
MAIL AVERAGE.....	97.9	3.9	4.6	8.1	7.1	2.9	21.1
Conventional Average....	97.5	3.8	5.3	6.4	4.7	3.4	19.9
RICHMOND, IND.....	98.3	2.9	3.7	7.8	6.3	2.6	18.3
Van Wert, Ohio.....	98.2	2.5	4.3	5.9	3.3	2.8	15.9
JONESBORO, ARK.....	98.1	4.2	5.5	10.4	7.4	3.1	22.1
Jackson, Tenn.....	97.4	4.3	6.4	9.3	5.0	4.1	24.2
MANKATO, MINN.....	98.7	2.6	3.1	6.0	5.8	2.1	21.7
Sioux City, Iowa.....	98.3	2.9	4.0	4.7	3.4	2.8	19.4
TALLAHASSEE, FLA.....	97.0	4.9	6.4	9.3	8.6	3.5	19.9
Panama City, Fla.....	96.7	4.6	6.5	6.6	6.7	3.5	18.6
EUGENE, OREG.....	97.4	4.9	4.5	6.9	7.6	3.4	23.3
Lacey, Wash.....	97.1	4.5	5.2	5.4	5.2	3.7	21.3

¹Percent of total long form persons with at least two sample items filled.²20 percent sample item based on total population.³15 percent sample item based on total population.⁴20 percent sample item based on population 25 years and older.⁵15 percent sample item based on persons 3 to 34 years of age enrolled in school.⁶20 percent sample item based on total families.

Table 7. 1970 Census Housing Allocation Rates for 100 Percent Items

MAIL EXTENSION TEST

District office	Tele- phone ¹	Access to unit ²	Complete kitchen ²	Number of rooms ²	Hot and cold water ²	Toilet ²	Bath ²	Base- ment ²
MAIL AVERAGE.....	3.20	0.21	2.02	1.24	1.92	1.26	1.37	1.92
Conventional Average...	3.16	0.19	2.16	1.37	2.08	1.46	1.48	1.58
RICHMOND, IND.....	2.80	0.22	1.71	1.14	1.52	1.09	1.14	1.70
Van Wert, Ohio.....	2.26	0.13	1.58	1.23	1.59	1.20	1.22	1.31
JONESBORO, ARK.....	3.18	0.15	2.87	1.03	2.44	1.21	1.16	1.99
Jackson, Tenn.....	4.14	0.33	4.24	1.92	3.16	2.17	2.25	2.35
MANKATO, MINN.....	2.14	0.17	1.51	0.87	1.35	0.88	1.00	1.35
Sioux City, Iowa.....	2.41	0.15	1.36	0.88	1.52	1.10	0.89	1.11
TALLAHASSEE, FLA.....	4.16	0.25	2.29	1.55	2.32	1.56	1.92	2.47
Panama City, Fla.....	3.65	0.16	2.30	1.61	2.39	1.67	1.83	1.83
EUGENE, OREG.....	3.72	0.27	1.72	1.63	1.99	1.57	1.64	2.07
Lacey, Wash.....	3.34	0.18	1.33	1.19	1.74	1.16	1.23	1.32
	Tenure ¹	Type of struc- ture ²	Use of property ³	Value of unit ⁴	Contract rent ⁵	Vacancy status ⁶	Duration of vacancy ⁶	Number of units at address ²
MAIL AVERAGE.....	1.87	2.72	5.02	3.24	8.48	2.77	12.36	4.01
Conventional Average...	2.21	3.05	3.96	2.35	11.78	2.30	12.25	3.25
RICHMOND, IND.....	1.61	2.16	4.35	2.80	9.70	3.90	12.09	2.45
Van Wert, Ohio.....	1.59	2.13	3.09	1.85	12.01	2.00	12.09	2.02
JONESBORO, ARK.....	1.75	2.55	5.06	2.83	8.41	2.57	9.91	4.39
Jackson, Tenn.....	2.77	4.12	5.39	3.72	13.81	4.19	16.32	4.55
MANKATO, MINN.....	1.34	1.78	4.41	2.45	6.80	2.00	5.98	3.68
Sioux City, Iowa.....	1.44	1.85	3.47	1.49	10.99	1.99	7.44	2.14
TALLAHASSEE, FLA.....	2.40	3.79	5.60	4.73	9.68	2.49	14.81	4.62
Panama City, Fla.....	2.79	4.69	4.31	2.74	13.89	2.37	13.21	3.91
EUGENE, OREG.....	2.25	3.34	5.67	3.38	7.79	2.87	19.03	4.89
Lacey, Wash.....	2.48	2.48	3.54	1.95	8.22	0.95	12.18	3.64

¹Based on occupied housing units.²Based on occupied and vacant year round housing units.³Based on one-family housing units.⁴Based on owner-occupied and vacant for sale one-family housing units.⁵Based on renter-occupied and vacant-for-rent housing units.⁶Based on vacant year round housing units.

Table 8. 1970 Census Allocation Rates for Sample Housing Items

MAIL EXTENSION TEST

District office	Year built ¹	Heating equip-ment ¹	Units in struc-ture ¹	Source of water ²	Sewage dis-posal ²	Complete bath-rooms ²	Air condi-tioning ²	Year moved into unit ³	Auto-mobiles avail-able ⁴	Bed-rooms ⁵	Stories in struc-ture ⁵
MAIL AVERAGE.....	6.3	4.8	6.2	3.1	4.3	6.9	5.1	1.9	3.4	5.8	4.7
Conventional Average....	5.0	4.3	5.6	2.8	4.0	5.6	3.5	2.0	2.7	5.8	5.4
RICHMOND, IND.....	5.4	3.4	4.5	2.3	3.1	4.7	4.2	1.6	2.9	3.9	3.2
Van Wert, Ohio.....	3.5	3.2	4.1	2.1	2.8	3.5	2.5	1.4	2.0	3.8	3.3
JONESBORO, ARK.....	7.2	6.0	6.3	3.6	5.1	8.6	5.3	2.0	3.2	6.3	6.3
Jackson, Tenn.....	7.0	6.1	7.0	4.1	5.8	8.2	5.3	2.4	3.2	7.3	8.2
MANKATO, MINN.....	3.9	3.0	4.7	2.4	3.1	5.6	4.6	1.1	2.9	4.3	3.1
Sioux City, Iowa.....	3.3	3.0	4.5	2.5	3.1	4.7	3.0	1.5	2.0	4.4	3.6
TALLAHASSEE, FLA.....	7.4	5.8	8.0	3.8	5.7	10.8	6.3	2.5	4.8	8.1	5.7
Panama City, Fla.....	6.5	4.7	6.3	2.7	4.2	7.6	3.7	2.3	3.1	7.3	7.2
EUGENE, OREG.....	7.8	5.8	7.3	3.5	4.4	5.0	4.9	2.1	3.3	6.3	5.0
Lacey, Wash.....	4.9	4.6	6.1	2.7	4.1	4.0	3.2	2.3	3.1	6.2	4.6
	House heating fuel ⁶	Cooking fuel ⁶	Water heating fuel ⁶	Clothes washing machine ⁶	Clothes dryer ⁶	Dish washer ⁶	Home food freezer ⁶	Number of TV sets ⁶	UHF-equipped sets ⁷	Battery-operated radio ⁶	Owned second home ⁶
MAIL AVERAGE.....	5.4	2.2	8.6	3.1	3.2	2.9	3.1	2.5	4.5	2.9	3.3
Conventional Average....	6.2	3.3	6.9	3.6	3.5	3.7	4.1	3.6	5.2	3.7	4.1
RICHMOND, IND.....	3.0	1.8	5.3	2.2	2.1	2.3	2.4	1.8	3.2	2.3	3.0
Van Wert, Ohio.....	4.6	2.6	4.1	2.5	2.6	2.8	3.0	2.8	3.1	2.7	3.0
JONESBORO, ARK.....	7.1	2.4	17.5	2.8	3.0	3.1	3.4	2.5	4.7	3.3	3.3
Jackson, Tenn.....	9.1	4.0	13.6	4.0	4.1	4.2	4.8	4.0	7.1	4.5	4.8
MANKATO, MINN.....	3.8	1.3	5.6	2.6	2.5	1.9	2.2	1.7	3.9	1.9	2.4
Sioux City, Iowa.....	3.2	2.3	3.5	2.6	2.7	2.7	2.9	2.7	3.3	2.6	3.2
TALLAHASSEE, FLA.....	5.9	2.9	10.5	4.2	4.5	3.7	4.1	3.4	5.2	3.4	3.8
Panama City Fla.....	6.4	3.7	8.4	4.6	4.2	4.5	4.9	4.0	6.9	4.3	4.7
EUGENE, OREG.....	7.3	2.8	3.9	3.6	3.7	3.5	3.6	3.2	5.6	3.5	4.1
Lacey, Wash.....	7.9	3.9	5.0	4.2	4.1	4.4	4.8	4.4	5.8	4.4	4.7

¹20 percent item based on year round housing units.²15 percent item based on year round housing units.³15 percent item based on occupied housing units (head of household).⁴15 percent item based on occupied housing units.⁵5 percent item based on year round housing units.⁶5 percent item based on occupied housing units.⁷5 percent item based on occupied housing units with a television set.

Table 9. Comparison of the Overall Cost Per Unit and Cost Per Person Enumerated

MAIL EXTENSION TEST

District office	Total cost	Housing unit count	Population count	Cost per unit enumerated	Cost per person enumerated
MAIL AVERAGE.....				\$1.45	\$0.48
Conventional Average....				1.38	0.48
RICHMOND, IND.....	\$146,913	115,204	343,613	\$1.28	\$0.43
Van Wert, Ohio.....	208,895	159,176	486,315	1.31	0.43
JONESBORO, ARK.....	219,779	136,385	418,744	1.61	0.52
Jackson, Tenn.....	226,532	161,977	472,953	1.40	0.48
MANKATO, MINN.....	151,293	125,471	395,564	1.21	0.38
Sioux City, Iowa.....	198,513	151,040	432,062	1.31	0.46
TALLAHASSEE, FLA.....	266,797	142,731	437,940	1.87	0.61
Panama City, Fla.....	186,779	116,915	347,561	1.60	0.54
EUGENE, OREG.....	322,547	247,581	708,191	1.30	0.46
Lacey, Wash.....	372,029	296,055	791,190	1.26	0.47

Table 10. Comparison of Field and Office Cost Per Unit Enumerated

MAIL EXTENSION TEST

District office	Field staff payroll ¹	Office staff payroll ²	Field cost per unit enumerated	Office cost per unit enumerated	Percent of total cost due to field operations	Percent of total cost due to office operations	Percent of total cost due to all other costs ³
MAIL AVERAGE.....			\$1.02	\$0.25	70.0	17.6	12.4
Conventional Average.			1.16	0.15	84.4	10.4	5.1
RICHMOND, IND.....	\$99,623	\$28,121	\$0.86	\$0.24	67.8	19.1	13.1
Van Wert, Ohio.....	177,933	22,968	1.12	0.14	85.2	11.0	3.8
JONESBORO, ARK.....	160,906	37,127	1.18	0.27	73.2	16.9	9.9
Jackson, Tenn.....	187,685	21,867	1.16	0.14	82.9	9.7	7.4
MANKATO, MINN.....	103,800	28,873	0.83	0.23	68.6	19.1	12.3
Sioux City, Iowa.....	171,802	20,090	1.14	0.13	86.5	10.1	3.4
TALLAHASSEE, FLA.....	187,089	47,283	1.31	0.33	70.1	17.7	12.2
Panama City, Fla.....	148,083	25,841	1.27	0.22	79.3	13.8	6.9
EUGENE, OREG.....	226,162	49,298	0.91	0.20	70.1	15.3	14.6
Lacey, Wash.....	328,183	28,213	1.11	0.10	88.2	7.6	4.2

¹Crew leaders and enumerators (including prelisters for mail districts).

²District manager, field supervisor, supervisory crew leaders, administrative clerk or office supervisor, all other clerks (includes addressing of prelist questionnaires for mail offices).

³Post office costs, office rental, PEPOC, commercial mailing list charges, and Address Coding Guide, where applicable.

Appendix A. Counties Included in the Mail Extension Test

District Offices Enumerated Experimentally by Mail					District Offices Enumerated by the Conventional Method as Control Offices				
Richmond, Ind.	Jonesboro, Ark.	Mankato, Minn.	Eugene, Oreg.	Tallahassee, Fla.	Van Wert, Ohio	Jackson, Tenn.	Sioux City, Iowa	Lacey, Wash.	Panama City, Fla.
Adams Blackford Decatur Fayette Franklin Henry	Clay Craighead Crittenden Cross Greene	Blue Earth Brown Carver Cottonwood Faribault	Benton Clatsop Columbia Coos Curry	Alachua Baker Bradford Clay Columbia	Auglaize Darke Defiance Fulton Hardin	Benton Carroll Chester Crockett Decatur	Buena Vista Calhoun Carroll Cherokee Clay	Clallam Cowlitz Grays Harbor Island Jefferson	Bay Calhoun Franklin Gadsden Gulf
Jay Randolph Rush Union Wayne Wells	Jackson Lawrence Lee Mississippi Monroe	Jackson Le Sueur McLeod Martin Murray	Douglas Jackson Josephine Lane Lincoln	Dixie Gilchrist Hamilton Jefferson Lafayette	Henry Mercer Miami Paulding Putnam	Dyer Fayette Gibson Hardeman Hardin	Crawford Dickinson Emmet Humboldt Ida	Kitsap Kittitas Klickitat Lewis Mason	Holmes Jackson Liberty Okaloosa Santa Rosa
	Phillips Poinsett Randolph St. Francis Woodruff	Nicollet Nobles Pipestone Rock Scott Sibley Waseca Watonwan	Polk ¹ Tillamook Yamhill	Leon Levy Madison Nassau Putnam Suwannee Taylor Union	Shelby Van Wert Williams	Haywood Henderson Henry Lake Lauderdale McNairy Madison Obion Tipton Weakley	Kossuth Lyon Monona O'Brien Osceola Palo Alto Plymouth Pocahontas Sac Sioux Woodbury	Pacific San Juan Skagit Skamania Thurston Wahkiakum Whatcom Yakima	Wakulla Walton Washington

¹Except census tracts 51 and 52.

Appendix B. A Comparison of the Conventional and Decentralized Enumerator's Job

CONVENTIONAL	DECENTRALIZED
COMPLETED ADVANCE CENSUS REPORTS The enumerator, while in the field <ol style="list-style-type: none"> 1. lists the unit in the address register 2. checks the ACR for completeness and either accepts it as complete or asks the questions needing answers. 3. obtains sample information, if required, by personal interview and enters it on separate long form The enumerator, while at home <ol style="list-style-type: none"> 4. transcribes the ACR information for long form units to corresponding long form questionnaire. 	MAIL RETURN QUESTIONNAIRES The enumerator, while at home <ol style="list-style-type: none"> 1. checks in the questionnaires 2. edits the short forms 3. edits the long forms 4. follows-up by telephone, where possible, questionnaires which failed edit.* The enumerator, while in the field <ol style="list-style-type: none"> 5. follows-up by personal visit, when necessary, questionnaires which failed edit.
BLANK ADVANCE CENSUS REPORTS The enumerator, while in the field <ol style="list-style-type: none"> 1. lists the unit in the address register 2. completes a regular short form or a long form, as specified, by personal interview. 	NONMAIL RETURN QUESTIONNAIRES The enumerator, while in the field completes a short form or long form, as specified, by personal interview.

*Short forms with three or more blanks; long forms with six or more blanks, sample population page missing for a person, or industry or occupation items inadequate.

Appendix C. A Comparison of the Conventional and Decentralized Final Questionnaire Review Carried Out by Crew Leaders

CONVENTIONAL	DECENTRALIZED
<p>CHECK FOR MISSING QUESTIONNAIRES: every ED</p> <ol style="list-style-type: none"> questionnaire serial numbers checked against Address Register. If any questionnaires are missing, ED fails. Enumerator or crew leader must get at least last resort information for missing questionnaires. If last resort information not attainable, and permission is granted by supervisor, crew leader creates close-out questionnaires, determining type of form from register. (No mention is made of how many close-outs maximum) 	<p>CHECK FOR MISSING QUESTIONNAIRES: every ED</p> <ol style="list-style-type: none"> same as conventional same as conventional same as conventional If last resort information not attainable, crew leader creates close-out questionnaires. Instructions read "you may discover that you have one or two". (No reminder on how to determine type of form for close out)
<p>CHECK FOR INCOMPLETE QUESTIONNAIRES: every assignment</p> <ol style="list-style-type: none"> Each questionnaire marked "Incomplete" or not marked is examined for last resort information. If questionnaire has less than last resort, treat as missing questionnaire (see above) If more than 12 "incomplete" short forms have at least last resort information, then assignment fails and all "incomplete" short forms are returned to enumerator. If more than 5 "incomplete" long forms have at least last resort information, then assignment fails and all "incomplete" long forms are returned to enumerator. 	<p>CHECK FOR INCOMPLETE QUESTIONNAIRES: every assignment</p> <ol style="list-style-type: none"> same as conventional, except instructed to exclude close-outs from check. same as conventional same as conventional If more than 10 "incomplete" long forms have at least last resort information, then assignment fails and all "incomplete" long forms are returned to enumerator. (instructions on Form D-184 contradicted by manual, which states the crew leader is to return all incompletes, short AND long, to enumerator if EITHER type of form fails check)
<p>CHECK ON ITEMS A4, A5, AND B: every assignment</p> <ol style="list-style-type: none"> sample of 15 questionnaires from assignment If one or more omissions, assignment fails and is returned to enumerator. 	<p>CHECK ON ITEMS A4, A5, AND B: every assignment</p> <ol style="list-style-type: none"> same as conventional same as conventional

Appendix D. A Comparison of the Conventional and Decentralized Office Checks Affecting the Completeness of Questionnaires

CONVENTIONAL	DECENTRALIZED
<p>CHECK FOR MISSING QUESTIONNAIRES: every ED</p> <ul style="list-style-type: none"> a. Questionnaire serial numbers checked against Address Register b. If three or more questionnaires missing, Address Register returned to Crew Leader for followup. c. If one or two missing, closeout questionnaires prepared in office. 	<p>CHECK FOR MISSING QUESTIONNAIRES: every ED</p> <ul style="list-style-type: none"> a. Same as conventional b. Same as conventional c. Same as conventional
<p>SCREEN QUESTIONNAIRES FOR COMPLETENESS: every ED</p> <ul style="list-style-type: none"> a. Sample of 15 consecutive questionnaires and the next seven long forms. b. Every questionnaire checked must have at least "last resort" information. c. For each person listed on a long form, entries are required in any four questions on a set of sample pop. pages. d. If three or more of the 22 questionnaires fail this check, the ED fails. 	<p>SCREEN QUESTIONNAIRES FOR COMPLETENESS: every ED</p> <ul style="list-style-type: none"> a. Same as conventional b. Same as conventional c. For each person listed on a long form, entries are required in any five questions on a set of sample pop. pages. d. Same as conventional
<p>No 5 Consecutive Long Form Edit</p>	<p>EDIT 5 CONSECUTIVE LONG FORM QUESTIONNAIRES: ED's which passed edit above</p> <ul style="list-style-type: none"> a. Sample of five long forms--edit same as supplementary edit below. (Long forms marked "incomplete" ineligible for this check) b. If error tallies equal 21 or more, ED fails, but only long forms get supplementary edit below.
<p>SUPPLEMENTARY EDIT: ED's which failed "Screen" Edit</p> <ul style="list-style-type: none"> a. All short forms missing five or more required items go back for followup. b. All long forms missing either 10 or more required items or one population page go back for followup. 	<p>SUPPLEMENTARY EDIT: ED's failing "Screen" or "Long Form" Edits</p> <ul style="list-style-type: none"> a. All short forms missing three or more required items go back for followup. b. Same as conventional



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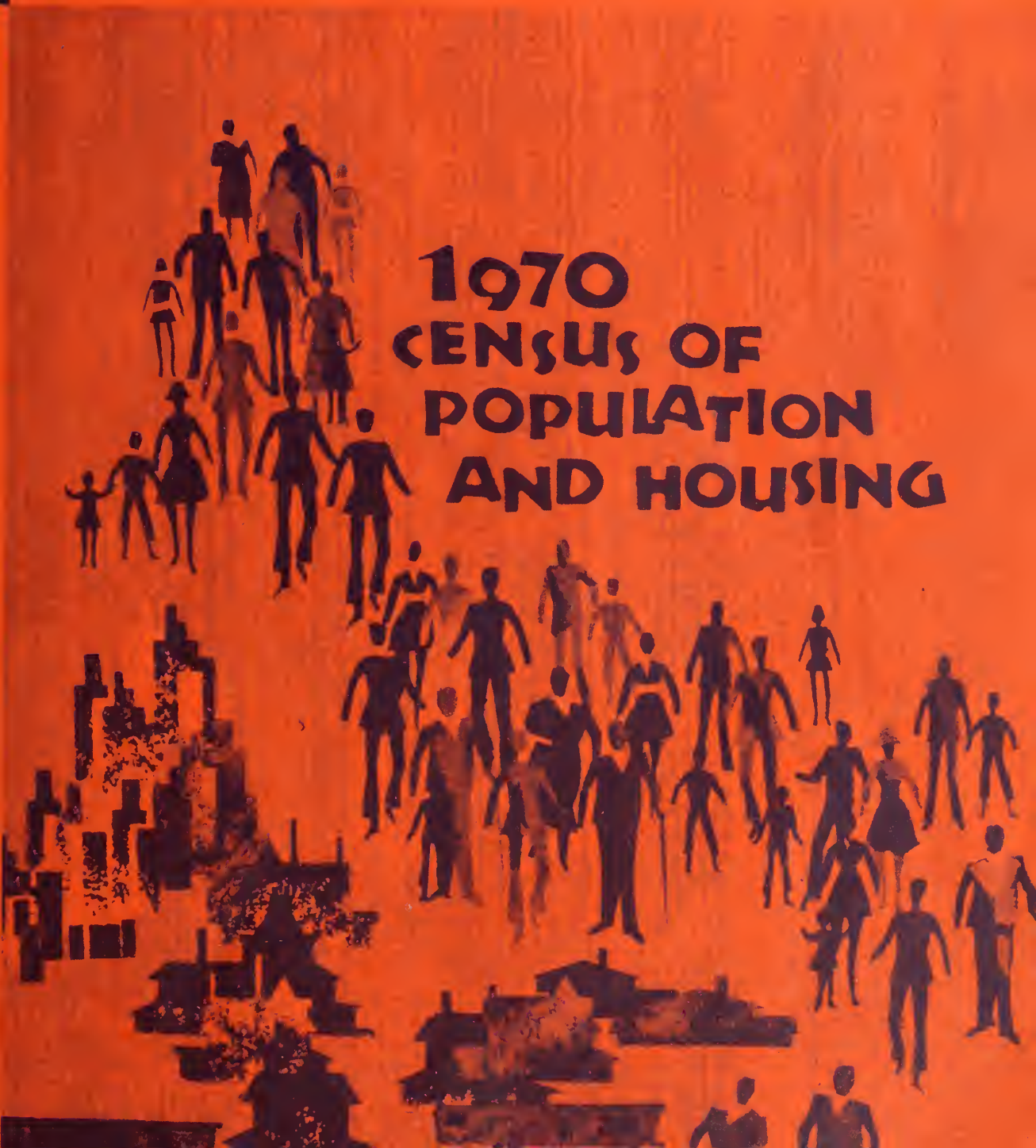


Evaluation and Research Program

Estimates of Coverage of Population by Sex, Race, and Age: Demographic Analysis

1970 CENSUS OF POPULATION AND HOUSING

U.S. DEPARTMENT
OF COMMERCE
BUREAU OF
THE CENSUS



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BUREAU OF THE CENSUS

Vincent P. Barabba, Director

Robert L. Hagan, Deputy Director

Daniel B. Levine, Associate Director for Demographic Fields

David L. Kaplan, Chief, Demographic Census Staff

POPULATION DIVISION

Meyer Zitter, Chief

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1970 CENSUS OF POPULATION AND HOUSING

Evaluation and Research Program

**Estimates of Coverage
of Population by
Sex, Race, and Age:
Demographic Analysis**

Preface

This is one of a series of reports on results from the Evaluation and Research Program of the 1970 Census of Population and Housing. The program is comprised of a variety of studies, each designed to produce data on the accuracy of selected subject matter or on the effectiveness of specific methodological features of the census-taking process. The major findings and results from these studies are being published in the PHC(E) series of reports, as significant phases of the various studies are completed.

This report presents estimates of the completeness of coverage of the population of the United States in the 1970 Census, developed by the method of demographic analysis. Separate estimates of net census errors are shown for each age and sex group and for whites, Negroes and other races combined, and Negroes. Comparable figures for 1960 are also presented.

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Estimates of Coverage of Population by Sex, Race, and Age: Demographic Analysis

by Jacob S. Siegel

Introduction

The Census Bureau has shown a continuing concern for the quality of the data on population obtained in decennial censuses and this document represents another report of the results of the Bureau's studies of this kind. A number of reports have been issued by Bureau staff members relating to coverage of the 1950 and 1960 Population Censuses.¹ A few brief general papers have been presented at meetings of the American Statistical Association in the last few years relating to the coverage of the population in the 1970 Census.² Specific estimates of the coverage of the total population and of net census errors for age, sex, and race (white, Negro-and-other-races, Negro) categories in the 1970 Census, along with comparable estimates for 1960, were included in an abbreviated version of the present document presented at the 1973 meeting of the Population Association of America.³ It is the general purpose of the present document to describe the methods and assumptions, as well as the results, of that study more fully and to consider some of the implications of the results.

In measuring the completeness of population coverage and the accuracy of the data on age, sex, and race in recent U.S. Censuses, the Bureau has used a variety of evaluation methods, each of which has some advantages and some limitations. These evaluation methods may be identified as reinterviews, record checks, analytical techniques, and use of aggregated data from administrative records.

1. Reinterviews.—A reinterview study consists of reenumerating a probability sample of households for the purpose of checking their coverage in the census. The addresses of the housing units and the names of persons that are listed are matched against the census records, unit-by-unit and name-by-name, in order to find differences caused by underenumeration (misses) and overenumeration (duplication). Households that are not found in the census, or for which differences are found, are revisited in order to correct any reinterview errors. The reinterview is usually performed by specially selected, trained, and supervised interviewers and every effort is made to produce "quality" results.

The outstanding advantage of the reinterview method is a direct result of the fact that case-by-case matching is involved. The reinterview method lends itself readily to the identification of the components of coverage error. Such components may be distinguished as underenumeration versus overenumeration, persons who were missed because their units were missed versus "within" household omissions, field omissions versus processing errors, and errors of omission versus errors of reporting age, sex, or race. This ability to identify the components of error provides the basis for an understanding of the reasons for coverage error and thus gives clues to methods of reducing coverage errors in future censuses.

Conversely, the reinterview method has two major weaknesses. First, despite all the precautions taken, reinterview studies also have coverage errors and these errors are correlated with errors in the census; that is, the very households and persons that are missed in the census are more likely to be missed in the reinterview survey. The consequence of this correlation is that estimates of underenumeration based on reinterview samples are biased in the direction of understatement. Moreover, the errors do not appear to be equal in size for different population groups.

The second important weakness in the reinterview method comes from its dependence on matching as a means of deciding whether or not a given housing unit or person has been enumerated in the census. When reliance must be placed on two statistical files describing addresses and the names of individuals living there, inevitably there are, on the one hand, risks of false matches and, on the other hand, risks of failure to match units and persons that are listed in both files. Errors of the first type can easily occur when there are similar, even if not identical, names and addresses in the two files. Mistakes of the second type are the more common and typically occur when an individual was "imputed" in the census as, for example, when his census questionnaire was received in a damaged condition and could not be read by the tabulation equipment. In the 1970 Census, the risks of failure to match properly were slightly increased because the census addresses had been computer-coded to different geographic areas and coding errors often made it difficult to locate a person's address in the census records.

2. Record checks.—In general terms, the record-check method consists of defining a specified list of names—or a combination of lists—as representing a population frame whose coverage in the census is to be checked. None of the lists, naturally, may come

¹U.S. Bureau of the Census, *The Post-Enumeration Survey: 1950*, Technical Paper No. 4, Washington, D.C., 1960; U.S. Bureau of the Census, *U.S. Census of Population: 1960*, Vol. I, *Characteristics of the Population*, Part 1, United States Summary, U.S. Government Printing Office, Washington, D.C., 1964, pp. XXXIX-XL; Conrad Taeuber and Morris H. Hansen, "A Preliminary Evaluation of the 1960 Censuses of Population and Housing," *Demography*, Vol. I, No. 1, 1964, pp. 1-13; U.S. Bureau of the Census, *Evaluation and Research Program of U.S. Censuses of Population and Housing, 1960: Record Check Studies of Population Coverage*, Series ER 60, No. 2, Washington, D.C., 1964; Eli S. Marks and Joseph Waksberg, "Evaluation of Coverage in the 1960 Census of Population Through Case-by-Case Checking," *Proceedings of the Social Statistics Section*, 1966, American Statistical Association; Jacob S. Siegel and Melvin Zelnik, "An Evaluation of Coverage in the 1960 Census of Population by Techniques of Demographic Analysis and by Composite Methods," *Proceedings of the Social Statistics Section*, 1966, American Statistical Association; and Jacob S. Siegel, "Completeness of Coverage of the Nonwhite Population in the 1960 Census and Current Estimates, and Some Implications," *Social Statistics and the City*, David M. Heer, Editor, Report of a Conference Held in Washington, D.C., June 22-23, 1967, Joint Center for Urban Studies of the Massachusetts Institute of Technology and Harvard University, 1968.

²Jacob S. Siegel, "Coverage of Population in the 1970 Census: Preliminary Findings and Research Plans," *Proceedings of the Social Statistics Section*, 1970, American Statistical Association, 1971; Joseph Waksberg, "Evaluating the Quality of the 1970 Census," *Proceedings of the Social Statistics Section*, 1972, American Statistical Association, 1973.

³Jacob S. Siegel, "Estimates of Coverage of the Population by Sex, Race, and Age in the 1970 Census," paper presented at the meeting of the Population Association of America, New Orleans, La., April 26, 1973. Estimates of housing unit coverage in 1970 were given in a paper presented at the same meeting by Lawrence Love et al., "Estimates of Housing Unit Coverage in the 1970 Census, Including Data by Types of Geographic Areas."

from the census being evaluated, although they may be drawn from another census. A sample is drawn from the list and an attempt is made to determine the residence of each sample person at the time of the census. Persons whose names cannot be found in the census records are contacted, if possible, to be sure that their correct address was searched for or, if a different address is secured, to see if they were missed. In addition, the sample persons are asked about all other places at which they might have been counted. The results will provide estimates of gross underenumeration and overenumeration, and of the net coverage error.

The principal advantage of the record-check method results from the fact that omissions from the record-check list are less likely to be correlated with omissions from the census than are reinterview data. Consequently, the tendency for estimates of coverage error from record-check samples to be biased in the direction of understatement is almost sure to be less pronounced than for reinterview samples.

Several weaknesses may be associated with the record-check method. Matching is even more of a problem for the record check than for the reinterview. In the reinterview, address matching is usually not a problem if the sample is selected from census records or from mapped areas having a known relationship to census enumeration districts. In a record check, however, the addresses come from independent listings that may identify housing units differently from the census. The results of the record-check method may also be adversely affected by sampling from records that are not current or that are seriously incomplete, with the coverage bias noted above.

3. Analytical techniques.—Another approach to the evaluation of the quality of census statistics is termed "demographic analysis." Among the various possible methods of coverage evaluation, demographic analysis, possibly supplemented to a limited extent by use of matching studies, is currently accepted by most technicians as providing the best measures of the coverage of the total population and of net census errors for age-race-sex groups. The method of demographic analysis depends on the logical consistency of demographic data of different kinds drawn from a variety of sources. The method actually encompasses a variety of approaches, but all share the general feature of developing expected values for the census categories by various specific demographic techniques and of comparing these expected values with the corresponding census counts. The expected values are usually derived by combining or manipulating such demographic data as other census counts, birth statistics, death statistics, and migration data. The various estimating and analytic techniques are applied both to data essentially independent of the census, such as birth, death, and immigration statistics, expected sex ratios, life tables, etc., and to historical series of census data, in order to derive the expected or corrected population for comparison with the census counts. When the census figure for the total population is being evaluated by demographic techniques, then the comparison provides an estimate of net coverage error. When, on the other hand, the census count for a specific age-sex-race group is being evaluated, then the comparison provides an estimate of net error that combines both coverage and the misreporting of age, sex, and race. For the most part, the analytic techniques, as contrasted with case-by-case methods, are not handicapped by problems of matching and the results are not affected by sampling error.

Analytic techniques have limitations also, however. A principal one is that the standards established are subject to some error. The accuracy of estimates derived by demographic techniques can be adversely affected both by errors in the basic data employed in preparing the estimates and by errors in the assumptions used. Analytic techniques may be quite effective in indicating the inconsistency between two sets of data without being able to identify the set of data which is in error or, alternatively, to distribute the error between the two sets of data. For example,

analytic techniques show clearly that 1950 Census counts of persons 55 years and over are low relative to 1960 Census counts of persons 65 years and over. The simple analytic techniques implied here do not tell us, however, whether the error is the result of a 1950 Census undercount, a 1960 Census overcount, or some mixture of both.

In addition, the method of demographic analysis is limited essentially to the evaluation of the basic demographic characteristics (i.e., age, sex, and race) and in itself provides only estimates of net error—that is, the combination of coverage error and reporting error (i.e., misreporting of age, sex, and race). Hence, it cannot provide such further interpretive information as the components of error in terms of overcoverage and undercoverage or errors due to omission and errors due to erroneous reporting of age, sex, and race, etc. Moreover, at present the method has been employed to develop only national estimates.

4. The use of aggregated data from administrative records.—In some cases estimates of net census errors may be derived by a comparison of census data with aggregated data from administrative records, such as social security records, birth records, etc. These data typically refer to particular age-sex segments of the population and require some adjustment so as to achieve comparability of coverage with the census data. As with demographic analysis, the components of the net errors cannot be derived. Another limitation of the method is that the validity of the results requires completeness of coverage of the population group under examination in the administrative records. In contrast, when administrative records are used in a record-check procedure, completeness of coverage is not a necessary, albeit a desirable, condition.

The principal method employed for making the estimates set forth in the present report is the method of demographic analysis, although there is some limited input of the results of other methods. Case-by-case checking (matching) techniques involving a reinterview survey or a prior sample survey or use of independent lists and records have been shown to have such serious limitations as devices for measuring the coverage of the total population and the accuracy of the counts by age, sex, and race that principal reliance has come to be placed on the method of demographic analysis for measuring coverage and accuracy in recent censuses. The former methods could not provide adequate estimates of coverage error in 1960 and 1950 when they were employed for that purpose; the estimates obtained by demographic analysis proved to be much more reasonable. The reinterview and record-check methods either greatly understated the undercoverage rate or provided too broad a range of estimates for these years.

For persons at the older ages the estimates obtained by demographic analysis were viewed as much weaker than for other age groups, partly because the system of estimation builds up the estimates from younger age groups and cumulative biases may result and partly from the interplay of coverage errors and age-reporting errors, which may be particularly large for the elderly. In order to evaluate the 1960 and 1970 census figures for the older population, a type of aggregated data from administrative records, specifically Medicare data, appeared to be the best basis available and, hopefully, would overcome the problems peculiar to the estimates for the older ages. Consequently, independent estimates of persons 65 and over in 1970 and 55 and over in 1960 were derived by adjusting Social Security Administration figures on persons enrolled for hospital and/or medical insurance under the Medicare system.

In order to suggest the range of error and the limitations of the demographic method in the present study, several estimates of net underenumeration of total population and of net census errors by sex, race, and age in 1960 and 1970 are presented. These alternative sets of estimates employ different data, procedures, or assumptions in varying degree. Variations between estimates tend to be greater in some categories than others. For example, we have only a single

set of estimates of net census errors for the white population under 35 years of age in 1970 but we have several estimates for the Negro aged population in 1970.

Each set of estimates is subject to unknown error which cannot be precisely and readily measured. However, it seemed desirable to make a choice, even if partly arbitrary, of a single set of estimates for discussion and working purposes, and we have done so. Fortunately, the estimates of net census errors for most age, sex, and race categories show relatively little variation and, as a result, we believe that we have arrived at a fairly satisfactory approximation of the overall level and pattern of errors in 1970 and 1960.

The evaluation presented here relates to the resident population of the 50 States and the District of Columbia. It excludes U.S. military personnel overseas, U.S. civilian citizens resident overseas, the population of Puerto Rico, and the population of other outlying areas of the United States.

The following sections of this report will present in specific terms (1) estimates of the coverage of the total population and of net census errors by sex, race, and age in the 1970 and 1960 censuses, as measured by various techniques of demographic analysis; (2) a description of the basis of these estimates in terms of data, procedures, and assumptions; (3) a description and analysis of the findings on the basis of the Census Bureau's "preferred" set of estimates; (4) a review and evaluation of the basic data and assumptions; and (5) a discussion of some implications of the findings for the demographic and socio-economic characteristics of the population and various public programs.

Coverage of Total Population

Estimates of the amount by which the coverage of the 1970 Census differs from the coverage of the 1960 Census can be derived simply by a comparison of the difference between census counts for 1960 and 1970 and estimates of intercensal population change between 1960 and 1970 based on births, deaths, and net immigration. For this purpose an estimate of corrected population in 1960 or of the amount or rate of underenumeration in 1960 is not necessary, but the estimates of intercensal population change must be highly accurate. Because we consider our estimates of births and deaths between 1960 and 1970 as being of a high order of accuracy, but not our estimates of net immigration, we present here several alternative estimates of intercensal change between 1960 and 1970 which vary solely on the basis of variations in the estimates of net immigration in this period. There is considerable uncertainty as to the exact amount of net immigration which occurred between 1960 and 1970 and, accordingly, the alternative estimates of the change in coverage between 1960 and 1970 have a moderately wide band of variation. The accuracy of the data on births, deaths, and net immigration is considered in some detail in a later section of this report.

Our latest estimate of intercensal population increase, 1960-70, based on births, deaths, and net immigration is 24,150,000, but the two census figures imply an increase of 23,912,000:

1960 Census (total resident population)	179,323,000
1970 Census (total resident population)	203,235,000
Net increase	+23,912,000
Births	+38,942,000
Deaths	-18,218,000
Net civilian immigration	+3,887,000
Net military movement overseas	-460,000
Net increase	+24,150,000

These figures indicate an error of closure of about -238,000, that is, that the 1970 Census missed about 238,000 more persons than the 1960 Census. The estimate of intercensal population change incorporates an estimate of 3,887,000 net civilian immigration. This estimate of civilian immigration may have a fairly large error, but it is not possible to determine the direction and size of the error. The uncertainty in the estimate of net civilian immigration pertains particularly to the amount of alien emigration and net movement of citizens, but it also pertains to the amount of alien immigration. The alternative estimates of the amount of net immigration vary, therefore, both with respect to the amount of immigration and the amount of emigration. Immigration could reasonably have been as much as 250,000 greater or emigration as much as 500,000 greater, resulting in intercensal population increases of 24,400,000 and 23,650,000, respectively. These figures correspond to errors of closure of -488,000 and +262,000, implying that the 1970 Census may have missed as many as 488,000 more persons, or missed as many as 262,000 fewer persons, than the 1960 Census.

We can see the implications of these figures for the actual coverage of the 1970 Census when we consider various specific estimates of coverage in 1960. Estimates of the actual amount and rate of net underenumeration of the 1970 Census may be viewed as depending on estimates of the amount of net underenumeration in the 1960 Census and estimates of population change for the 1960-70 decade based on births, deaths, and net immigration. In some of our series and for some ages, however, the estimates of corrected population are first obtained directly for 1970 (aged population). Table 1 presents estimates of the amount and percent of net underenumeration in the 1970 Census which correspond to various amounts and percents of net underenumeration in the 1960 Census and to various amounts of change in population between 1960 and 1970. The various estimates of the amount of net underenumeration in 1970 shown in the table range from 3.1 million to 5.8 million, but the more reasonable possibilities, indicated by demographic analysis, range from 4.8 million to 5.8 million. The figures for 1960 range from 3.3 to 5.3 million, but the narrower range for 1970 corresponds to 5.1 to 5.3 million in 1960. We have taken 5.1 million as our preferred estimate of the amount of net underenumeration in 1960 (derived from a composite of analytic methods, described below). On the basis of this figure and the preferred estimate of intercensal population change between 1960 and 1970 (24,150,000), we arrive at an estimate of 5.3 million net underenumeration in 1970.

It may be noted that the preferred estimate for 1960, 5.1 million, is somewhat lower than the estimate for that year which was presented by the Census Bureau at the Conference on Social Statistics and the City, 1967.⁴ The estimate of net underenumeration given in that study was 5.7 million. The difference of 0.6 million is accounted for by the following four elements, each of which had the effect of lowering the estimate: (1) A revision of the estimate of births for the 1950-60 decade on the basis of the results of the new Birth Registration Test of 1964-68; (2) a revision of the expected "true" sex ratio for the ages 65 and over in 1960; (3) the introduction of data on "Medicare" enrollments for 1970, which were not available when the earlier estimates for 1960 were prepared; (4) use of improved methodology for estimating the coverage of Negroes in the intermediate ages. A distribution by age and race of the differences between the amounts of net undercount in the 1960 Census as estimated in 1967 and as estimated in 1973 aids in identifying the basis of the revision (in thousands):

⁴ Siegel, "Completeness of Coverage....," op. cit.

Age	All classes	White	Negro and other races
Total	632	303	329
Under 10	72	26	46
10-24	—	—	—
25-54	178	—	178
55 and over	383	278	105
55-64	153	164	-11
65 and over	230	114	116

The first factor above accounts for the change in ages under 10; the second factor or the third factor independently accounts, largely or wholly, for the change in ages 65 and over; the third factor accounts principally for the change in ages 55 to 64; and the fourth accounts for the change in ages 25 to 54.

The methods of demographic analysis showed that the 1970 Census had an undercoverage rate between 2.3 and 2.8 percent, as compared with 2.7 to 2.9 percent in 1960 (table 1). Our preferred estimate of the amount of net underenumeration in 1960 represents a rate of 2.7 percent. The corresponding rate for 1970 is 2.5 percent, representing a decrease of 0.2 percentage point. Even though the number missed increased somewhat, because of the large increase in population the omission rate declined between 1960 and 1970. Comparable rates of net underenumeration for 1940, 1950, 1960, and 1970 show a steady improvement in coverage of the population in the last four censuses. The overall rate of undercoverage is estimated at 3.3 percent in 1950 and 3.8 percent in 1940. These figures imply a drop of 0.8 percentage point since 1950 and 1.3 percentage point since 1940. Although the population has been increasing rapidly the number of persons missed has changed little.

Shifts in both the race and age composition of the population between 1960 and 1970 tended to militate against a reduction in the overall undercoverage rate from 1960 to 1970 since the greater population gains were typically in the groups with higher omission rates. The 1960-70 change in the age-sex-race composition of the population would have caused a rise of about 0.2 percentage point in the rate of total underenumeration if the error rates for the age, sex, and race groups in 1960 had prevailed in 1970. Instead, the tendency of demographic changes to increase the overall rate was not only overcome but there appears to have been a slight decline in the rate.

Estimates of Net Census Errors by Sex, Race, and Age

Four sets of estimates of net census errors by sex, race (white, Negro-and-other-races, Negro), and age, designated A, B, C, and D, were prepared for 1970 and 1960. (The estimates for the total population of each sex-race group were derived by combining these figures by age.) Three of the four sets of age estimates (i.e., all except Set C, Negroes) for each race-sex group employ the same estimates of the population under age 35 in 1970 and under age 25 in 1960, since estimates for these ages could be derived directly from birth statistics. The A, B, and D sets of estimates vary only with respect to the figures for the two age segments 35 to 64 and 65 and over in 1970, and 25 to 54 and 55 and over in 1960. As a result of the way the estimates for particular age segments were combined, there are only two different sets of estimates of corrected population (A and C, B and D) for whites and four (A, B, C, and D) for Negroes.

Estimates of net census errors by sex, race, and age reflect the accuracy of age, sex, and race reporting as well as completeness of coverage. Even the total (all ages) figures for each sex-race group are affected to some extent by (sex and race) misclassification. Furthermore, the net age reporting error is a larger component of

the net census error at some ages than the net coverage error. For example, in a few cases the number reporting an age group erroneously is sufficiently great to result in a net census "overcount;" duplicate enumeration is not an important factor in such an "overcount." For most ages, however, the combination of net coverage error and net age reporting error results in a net census undercount; that is, commonly, there is net underreporting in an age group as well as net underenumeration, or the net overreporting in the age group is less than the net underenumeration. At present, net census errors cannot be reliably partitioned into net coverage error and net age reporting error although studies of age misreporting have been made.⁵

SELECTION OF CENSUS COUNTS

Some of the tables in this document present two sets of estimates of net census errors in 1970—one set based on the complete-count census figures as reported in Series B—U.S. Summary of the 1970 Census, and a second set based on the Series B complete-count tabulations (Negro) and the sample figures as reported in Series C—U.S. Summary of the 1970 Census (white, other races). The second set of error rates using the combination of the Series B and Series C census tabulations was computed because the Series B census tabulations contained certain patent "errors" and the Series C census tabulations eliminated the principal one of these. The combined Series B and Series C tabulations were also adjusted for two other smaller errors noted below, before use in comparison with the corrected population. It should be noted that these adjustments have removed only minor known distortions in the counts, where the errors in the base figures were obvious and have been recognized through published corrections. (These adjusted census figures are also to be employed as the population bases of our national postcensal population estimates program.)

As a result of a misclassification of the population by race in the complete-count tabulations, too many persons were classified as "other races" (other than white or Negro) and too few as "white." Specifically, it appears that some persons of Spanish ancestry reported themselves as of a race other than white, Negro, or other specific race, rather than white as expected, and the error was often not repaired in the field editing. A measure of the extent of the misclassification is provided by a comparison of the sample (Series C) tabulations of the population and the complete-count (Series B) tabulations. For the sample tabulations the responses to the question on race were further edited. As a result of this editing operation, some 327,000 persons were transferred from "other races" to "white." The effect on the Negro count was negligible and no adjustment was made. The figure 327,000 is about 63 percent of the population of "unspecified races" (517,000). There is some evidence in this study that an even larger number should have been reclassified from "other races" to "white." The age-sex distribution assigned to the reclassified population has been "built up" from (Series B) census data on the age-sex distribution of the "other races" population in each county for which a race adjustment had to be made.

The second variation from the Series B tabulations is designed to correct for a gross overstatement of the number of persons 100 years old or more. The excess has been estimated for each sex-race group, with an overall figure of 103,000. The overstatement is believed to have resulted, in large part, from a misinterpretation on the part of some respondents as to how to fill out the question on age on the census form. The correct ages are believed to be spread over the age scale; hence the excess centenarians for each sex-race group were distributed *pro rata* over the ages under 100.

⁵ A report being published in the Evaluation and Research Series, PHC(E), compares 1970 Census data on age, sex, and race with the corresponding data from the Current Population Survey on the basis of a match study and presents measures of response bias and response variability for these characteristics.

Finally, the official figure for the total population of the United States—203,235,000—is about 23,000 greater than the total of the age, sex, and race distribution published in Series B—U.S. Summary—203,212,000. The addition represents the sum of corrections for errors in the population counts for various local areas which were discovered after the initial tabulations. In deriving the adjusted census figures, the difference was assigned by sex, race, and age according to the known or presumed source of the error.

As a result of the adjustments noted, the complete-count (Series B) census figures for the white population are increased, except at ages 75 and over, and the complete-count (Series B) census figures for the Negro-and-other-races population are reduced. The net census errors for the white adjusted population are smaller, and the net errors for the Negro-and-other-races adjusted population are larger, than the corresponding net errors based on the Series B census data. The figures for Negroes are hardly changed, except at ages 75 and over.

ALTERNATIVE SETS OF ESTIMATES OF NET UNDERCOUNTS

Set A estimates.—The estimates of net census errors for 1970 presented in tables 2, 4, and 5 as set A are based on the estimates of corrected population for 1960 which were previously presented at the Conference on Social Statistics and the City.⁶ Two modifications were made in the previous estimates of error rates. The estimate for children under 10 was reduced slightly because of a revision of the estimate of births for 1950 to 1960 and the estimate for males 65 and over was substantially reduced because of a revision of the expected sex ratio at this age. These estimates as modified are hereinafter referred to as the "Conference" estimates. The corresponding corrected population in 1970 represents extensions to 1970 of the corrected figures for 1960 and of births during the 1960-70 decade. In effect, the estimates of the corrected population under 35 years of age are based directly on birth statistics for the years from 1935 onward, adjusted for underregistration. These are then carried forward to later census dates by estimates of deaths and net immigration. This procedure gave estimates for the population under age 25 in 1960, under 15 in 1950, and under 5 in 1940, as well as under 35 in 1970.

The estimates for white females 25 and over in 1960 and 35 and over in 1970 represent extensions of the Coale-Zelnik estimates for native white females aged 15 and over in 1950.⁷ The latter estimates were developed as part of a historical reconstruction of the native white population in single ages from 1880 to 1950. In general, the Coale-Zelnik method involved estimating the "true" numbers of births for each year from the census counts for the population in single ages (adjusted for age "heaping") in several successive censuses corresponding to each birth cohort, and then aging these births forward to census dates to represent the corrected population.

Estimates for the Negro population were derived from estimates for Negroes-and-other-races by a procedure described below under "Set D estimates." The estimates for Negro-and-other-races females 25 and over in 1960 and 35 and over in 1970 represent extensions of the Coale estimates for those cohorts in 1950.⁸ Given estimates of net undercounts for children in 1940 and 1950, Coale derived estimates of net undercounts at the higher ages by an iterative technique, on the general hypothesis that the age patterns of net undercounts were similar in the 1930, 1940, and 1950 Censuses.

More specifically, he assumed that the percentage of net undercount at a given age in the 1930 Census was equal to the lower of the percentages of net undercount at the same age in 1940 and 1950. By aging the 1930 corrected population forward to 1940 and 1950, with allowance for deaths and net immigration, net undercounts were derived for the older ages in these years. The least reliable results of this method are for the older ages, since the errors tend to accumulate with increasing age. Accordingly, Coale rejected the figures for the age group 65 and over in 1950 and substituted the 1950 Post-Enumeration Survey results.

The Conference estimates for males are not based on the Coale study. The figures for males in 1960 and 1970 employed in the present study were derived by applying expected "true" sex ratios to the corrected estimates for females in 1960 and extending the resulting estimates to 1970. Expected "true" sex ratios represent the estimated ratio of males to females expected at the census date on the basis of the balance of the sexes at birth and subsequent changes occurring to the cohort. They were developed from a historical series of sex ratios of births adjusted for (1) "sex ratios" of survival rates calculated from a historical series of life tables, (2) civilian and military net movement to or from the United States, and (3) excess mortality due to war. (See below for further discussion.)

Set B estimates.—In a partial variation of the set A estimates, designated set B estimates, estimates of corrected population 65 years and over based on tabulations of "Medicare" enrollments for 1970 were used in place of the Conference estimates for this age group. These estimates begin with the population enrolled for either part of Medicare (hospital insurance or supplementary medical insurance), distributed by age, sex, and race (white, Negro-and-other-races) for January 1, 1970 and July 1, 1970. The tabulations used are 9-month "updates," that is, they incorporate corrections in the enrolled population as of the reference date that became known in the 9 months following the reference date.

The figures were then interpolated to April 1, 1970, and adjusted to allow for a small inconsistency between census data and Medicare data in the assignment of age in single years and for persons whose race was not specified.⁹ They were further adjusted to include aliens resident in the United States less than 5 years, who are ineligible for Medicare by law (estimated at about 65,000), and the number of Federal employees and annuitants and other persons who had not registered for Medicare (estimated at about 151,000 and 181,000, respectively). The estimates for the ages 65 and over in 1970 were then carried back to 1960 on the basis of estimates of intercensal change, to derive estimates of the population 55 and over by age, sex, and race in that year.

Set C estimates.—A third set of estimates of net census errors for 1960 and 1970, designated set C, uses a set of estimates of coverage of the native Negro population for these years prepared by Coale and Rives.¹⁰ It was assumed that the estimates of census error rates for the native Negro population apply equally to the total Negro population, in view of the small number of foreign-born Negroes.

⁹The official data required a 1-month "younging" adjustment since persons may be enrolled for Medicare benefits at any time during the month in which they attain 65 years of age. Race was not specified for about 3 percent of the Medicare enrollees. Enrollees whose race was not reported were distributed by race in proportion to enrollees whose race was reported. There is support for this assumption from the 1970 Census-Medicare Match Study.

¹⁰Ansley J. Coale and Norfleet W. Rives, Jr., "A Statistical Reconstruction of the Black Population of the United States, 1880-1970: Estimates of True Numbers by Age and Sex, Birth Rates, and Total Fertility," unpublished document prepared by the authors under a Project Agreement with the U.S. Census Bureau, 1972. The figures given in this document are preliminary; revised figures were later given in the report of the study published in Office of Population Research, Princeton University, and Population Association of America, Inc., *Population Index*, January 1973 (received July 1973).

⁶Ibid.

⁷A. J. Coale and M. Zelnik, *New Estimates of Fertility and Population in the United States*, Princeton, N.J., Princeton University Press, 1963.

⁸Ansley J. Coale, "The Population of the United States in 1950 Classified by Age, Sex, and Color—A Revision of Census Figures," *Journal of the American Statistical Association*, Vol. 50, No. 1, March 1955, pp. 16-54.

A detailed description of the procedure followed by Coale and Rives in preparing their estimates is given in their report. In brief, they attempted a reconstruction of the native Negro population from 1880 to 1970, starting with the assumption that the population in 1880 conformed to a stable model (i.e., a type of population whose age distribution and growth rate have been constant). Using model tables of stable populations, they determined the "true" age distribution in 1880 on the basis of the average annual growth rate from 1860 to 1880 and the age distribution as recorded in the census of 1880. The levels of fertility and mortality in 1880 were estimated from cumulative age distributions to different ages in that year. The corrected age distribution in 1880 was carried forward, decade by decade, to 1970 on the basis of mortality rates taken from a combination of model life tables and official life tables. The initial estimates of mortality were based on model life tables to 1900 and on official life tables (providing values for ages 5 and over) for the Death Registration Area from 1900 on. Estimates of female births were derived on the assumption that the proportion of the population under 20 years of age for females in the preliminary projections and the proportion in the census were the same, and estimates of male births were then obtained by use of an assumed sex ratio of births. The estimates for the population at ages under 25 in 1960 and under 35 in 1970 were based directly on birth statistics.

A comparison of the preliminary population projections with the figures from each census, by age and sex, indicated a continuous pattern of evolution in the apparent net census errors by age and sex, reflecting a pattern similar to that reported by Coale and Zelnik for the white population.¹¹ This procedure provided apparently useful indications of the age pattern of net errors in each successive census, but it did not provide an indication of the total net underenumeration. To allow for net underenumeration in the 1880 census and to adjust the estimates for later years so to allow for this underenumeration, while maintaining the level of the estimates for persons under 35 in 1970 and under 25 in 1960, mortality rates were increased in most of the projection period.

The Coale-Rives estimates and the Conference estimates for 1960 are rather similar, as may be seen by comparing the set A and set C estimates in table 5. This similarity is especially impressive because the two methods and their assumptions are quite different and relatively independent.

Set D estimates.—The final set of estimates of net census errors by sex, race, and age for 1960 and 1970, designated set D, represents a composite of the data, methods, and assumptions employed in the A, B, and C sets of estimates. This is our "preferred" set of estimates, the estimates which we have selected for working and discussion purposes.

The estimates for the white population in 1970 and 1960 have been derived from corrected population as follows:

1. The corrected population under 35 years of age in 1970 and under 25 in 1960 was based directly on birth statistics adjusted for underregistration, carried forward with deaths and net immigration. [Set A or Set B estimates]
2. The corrected female population 35 to 64 years of age in 1970 and 25 to 54 in 1960 was based on or corresponds to the 1967 Conference estimates for the population 25 to 54 in 1960 (Coale-Zelnik estimates for 1950 extended to 1960). [Set A or set B estimates]
3. The corrected male population 35 to 64 years of age in 1970 and 25 to 54 in 1960 was derived by applying expected "true" sex ratios to the corresponding corrected female population. [Set A or set B estimates]

4. The corrected population 65 and over in 1970 and 55 and over in 1960 was based on Medicare data for 1970, adjusted to include an estimate of the population not enrolled by Medicare. The figures are consistent with expected "true" sex ratios. [Set B estimates]

The estimates of net census errors for the Negro-and-other-races population and the Negro population in 1960 and 1970 have been derived from corrected populations as follows:

1. The corrected population under 35 years of age in 1970 and under 25 in 1960 was based directly on birth statistics adjusted for underregistration, carried forward with deaths and net immigration. [Set A or B estimates]
2. The corrected Negro female population 35 to 64 years of age in 1970 and 25 to 54 in 1960 was based on the Coale-Rives estimates of net census error rates for the native Negro female population in 1960. [Set C estimates]
3. The corrected Negro-and-other-races female population 35 to 64 years of age in 1970 and 25 to 54 in 1960 was derived on the assumption that the net undercount rates for this group exceeded the rates for the Negro female population by five percent in 1960, the average percentage difference between the rates for Negro and Negro-and-other-races females under 25 years of age in 1960.
4. The corrected Negro-and-other-races male population 35 to 64 years of age in 1970 and 25 to 54 in 1960 was derived by applying expected sex ratios for 1960 to the corresponding female population in 1960 and carrying the corrected male population in 1960 forward to 1970 by estimates of intercensal change.
5. The corrected Negro male population 35 to 64 years of age in 1970 and 25 to 54 in 1960 was derived on the assumption that the net undercount rates for the Negro population and the Negro-and-other-races population were the same in 1960, as suggested by the average relation between the undercount rates for these two populations at ages under 25 in 1960.
6. The corrected Negro-and-other-races population 65 and over in 1970 and 55 and over in 1960 was based on Medicare data for 1970, adjusted to include an estimate of the population not enrolled by Medicare. These figures are consistent with expected sex ratios. [Set B estimates]
7. The corrected Negro population 65 and over in 1970 and 55 and over in 1960 was derived on the assumption that the relation between the net undercount rates for the Negro population and the Negro-and-other-races population in 1960 was the same as for the younger ages (i.e., no difference between the rates for males and 5 percent difference for females).

Note should be taken of the following aspects of this composite method.

1. The Coale-Rives estimates for Negro males and females in 1970 and for Negro males in 1960 as such were not directly brought into the calculations, only the figures for Negro females (ages 25 to 54) in 1960.
2. In all the calculations, the estimates of intercensal change by sex, race, and age for 1960 to 1970 were those developed by the Census Bureau and were the same as those employed in sets A and B estimates.

¹¹ Coale and Zelnik, *op. cit.*

3. All estimates are consistent with independently derived, expected sex ratios by age, for whites and Negroes-and-other-races; for the population under age 35 in 1970 and under 25 in 1960 the direct estimates automatically reflect the "true" sex ratios.

4. The conversion of Negro estimates to Negro-and-other-races estimates, or the reverse, for ages over 25 in 1960 and over 35 in 1970, was made only in 1960, when both the Negro population and the "other races" population appeared consistently to experience net undercounts of roughly similar magnitude varying fairly regularly from age to age under age 25. In 1970, on the other hand, coverage of the "other races" population under age 35 appeared to be quite variable, with large "overcounts" as well as undercounts, while the coverage of the Negro population was rather regular from age to age. These findings suggest that the problem of misclassification still affects the "other races" population in 1970 even after the adjustments incorporated in the Series C census tabulations. In fact, the net census errors for "other races" may be more affected by classification problems than by coverage problems. In any case, the reliability of the net census errors for "other races" implied by the net errors for Negroes and Negroes-and-other-races is uncertain in view of the small size of the group and the nature of the estimating assumptions.

SUMMARY OF PRINCIPAL FINDINGS

The estimates of the coverage of the population in the 1970 Census that have been derived indicate that about two-thirds of the persons missed in that census were males and about two-thirds were white (table 2). According to the preferred set of estimates, adjusted set D, the net omission rate for males in 1970 (3.3 percent) was nearly twice that for females (1.8 percent), and the net omission rate for Negroes (7.7 percent) was about four times as great as for the white population (1.9 percent). The latter ratio would be about the same if the alternative estimates of undercoverage of the Negro population were used in the calculation since the estimates in set A (8.7 percent), set B (8.3 percent), and set C (7.3 percent) approximate the set D figure. Both race groups showed a greater deficit of males than females. According to the set D figures, one out of 10 Negro males (9.9 percent) was not counted. Undercoverage was least for white females (1.4 percent) and intermediate for white males (2.4 percent) and Negro females (5.5 percent).

Associated with the slight decrease in overall undercoverage between 1960 and 1970—from 2.7 percent in 1960 to 2.5 percent in 1970—there was little change in the net underenumeration rate for the white population (2.0 percent and 1.9 percent) and a modest decrease in the net underenumeration rate for the Negro population, from 8.0 percent in 1960 to 7.7 percent in 1970. There was a moderate male-female difference in 1960 which widened in 1970 because the coverage of females improved while the coverage of males remained about the same. Coverage rates for each sex-race group have tended to increase since at least 1950 (table 3). Most of the gain occurred in the 1950-60 decade, however, except for Negro-and-other-races females. The gap between the omission rates for the races, both for males and females, has tended to narrow in the 1950-70 period.

According to the preferred set of estimates, in 1970 net error rates for white females were under 3 percent in all 5-year age groups up to age 75 (table 4). Net error rates for white males were about 4 percent or less, except at ages 25-29 (4.7 percent). On the other hand, the rates for Negro females at most ages under 75 fell between 5 and 10 percent, the maximum undercounts being for ages under 5, 25-29, and 55-59 (table 5). The estimates indicate a very large net overcount of Negro females at ages 65-69 (15 percent) even though the 65-and-over group as a whole shows a moderate 4 percent net undercount. The net error rates for Negro males at ages under 65 exceeded 10 percent in all ages except in the

range 5-19 and at ages 60-64. Net undercount rates were quite high from 20 to 49 years of age, exceeding 12 percent in each age group and reaching 17 to 19 percent at ages 25 to 44. There appears to have been a small net overcount of Negro males 65 and over as a whole (3 percent), with a fairly high net overcount at ages 65 to 69 (10 percent). Alternative procedures indicate rather different estimates of census error for the Negro population 65 and over. As a result, there is uncertainty not only about the magnitude of the error rate of the Negro aged population but about its direction as well.

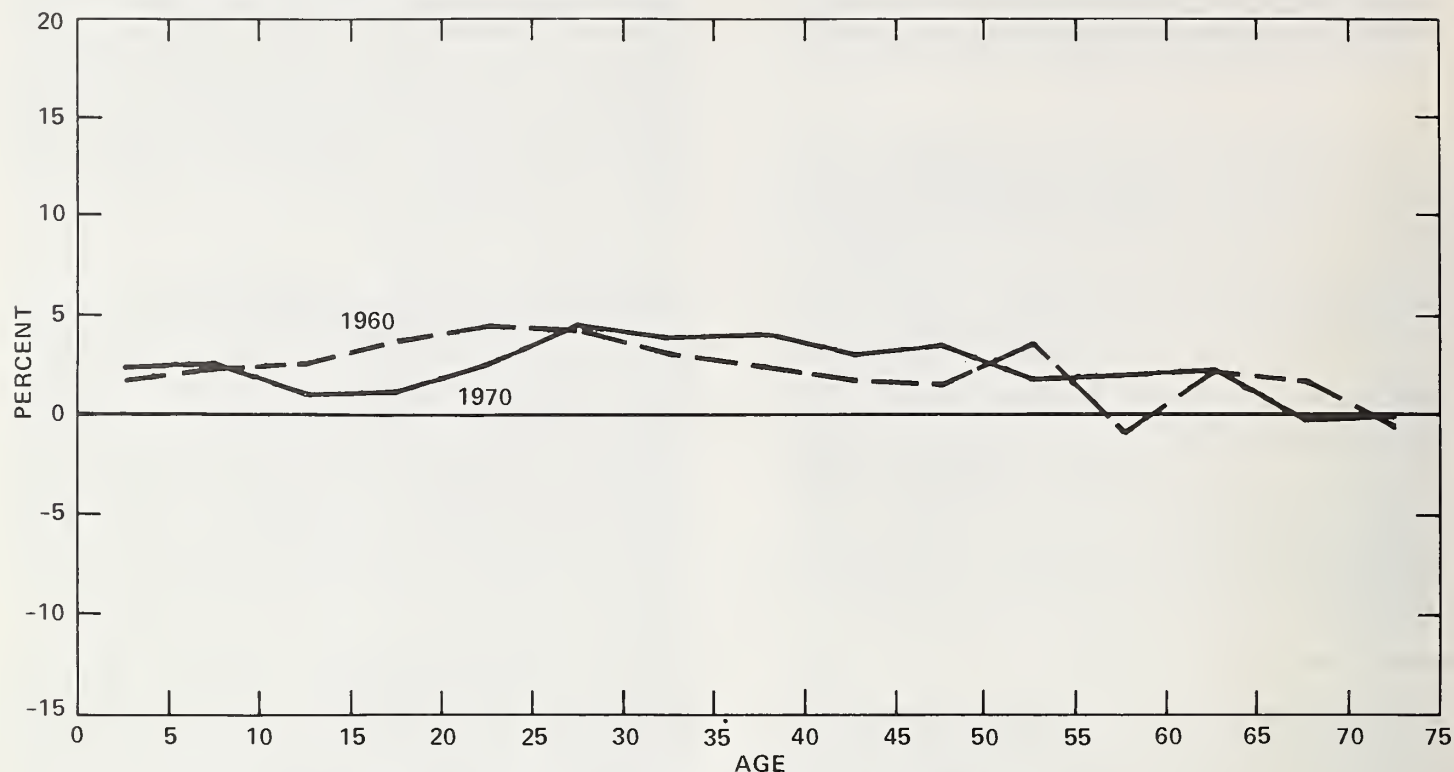
The net undercount rates for children under 5, regardless of sex or race, showed increases between 1960 and 1970. The net undercount rate for Negro children under 5 rose from 5.8 percent in 1960 to 10.1 percent in 1970 (table 6). The rise between 1960 and 1970 was similar for both boys and girls. The net undercount rate also rose substantially for Negro children aged 5-9. It is difficult to explain these increases in view of the steady declines in the undercount rates between 1940, 1950, and 1960 (table 7). At least two factors appear to have contributed to these increases to some extent; both are related to the fact that the short census questionnaire (without sample questions) used in the 1970 Census provided space for eight persons and the long form (with sample questions) provided space for seven persons. Some respondents with large families, particularly in mail out/mail back areas, failed to indicate that there were more persons in the household than could be listed on a single questionnaire or, having noted this on the questionnaire, were not contacted by enumerators to provide information for the additional persons. Furthermore, sometimes the continuation sheet, or second questionnaire, failed to record the serial number correctly, so that the sheets were not matched and many children listed on the continuation sheet were not counted as children.

The interpretation given is supported by the results of a special sample study, conducted in the mail return areas, of the questionnaire item which asked about additional persons. In about 16 percent of the households which required followup for additional persons, no persons were added even though additional names should have been listed; many of these omitted persons would be children. The interpretation is further supported by the finding that the 1960 and the 1970 Census sample statistics on the distribution of families by number of members show a sharp increase in the number and proportion of families with seven persons and a substantial decrease in the number and proportion with eight or more persons, especially for Negro families. Contrary to expectation, the increase for 7-person families was well above that for 6-person families.

Error rates for Negroes showed declines between 1960 and 1970 at the next three higher 5-year age groups, 10 to 24 years. The improvement at ages 10-14 was modest, as might be expected, since the rate was already relatively low. However, the declines at ages 15-19 and 20-24 were marked. The net undercount rate for Negro males aged 15-19 dropped from 12 percent to 4 percent and the rate for ages 20-24 dropped from 18 percent to 12 percent. Thus, while one out of seven Negro males 15 to 24 was missed in 1960, only one out of 13 Negro males in this age group was missed in 1970. Coverage at ages 10 to 24 improved in the same general degree for females as for males. We do not have a specific explanation for the remarkable gains at these ages except that, perhaps, here the Bureau's special efforts at coverage improvement "paid off" more than elsewhere. Why these efforts were more successful at these ages than at others is not clear.

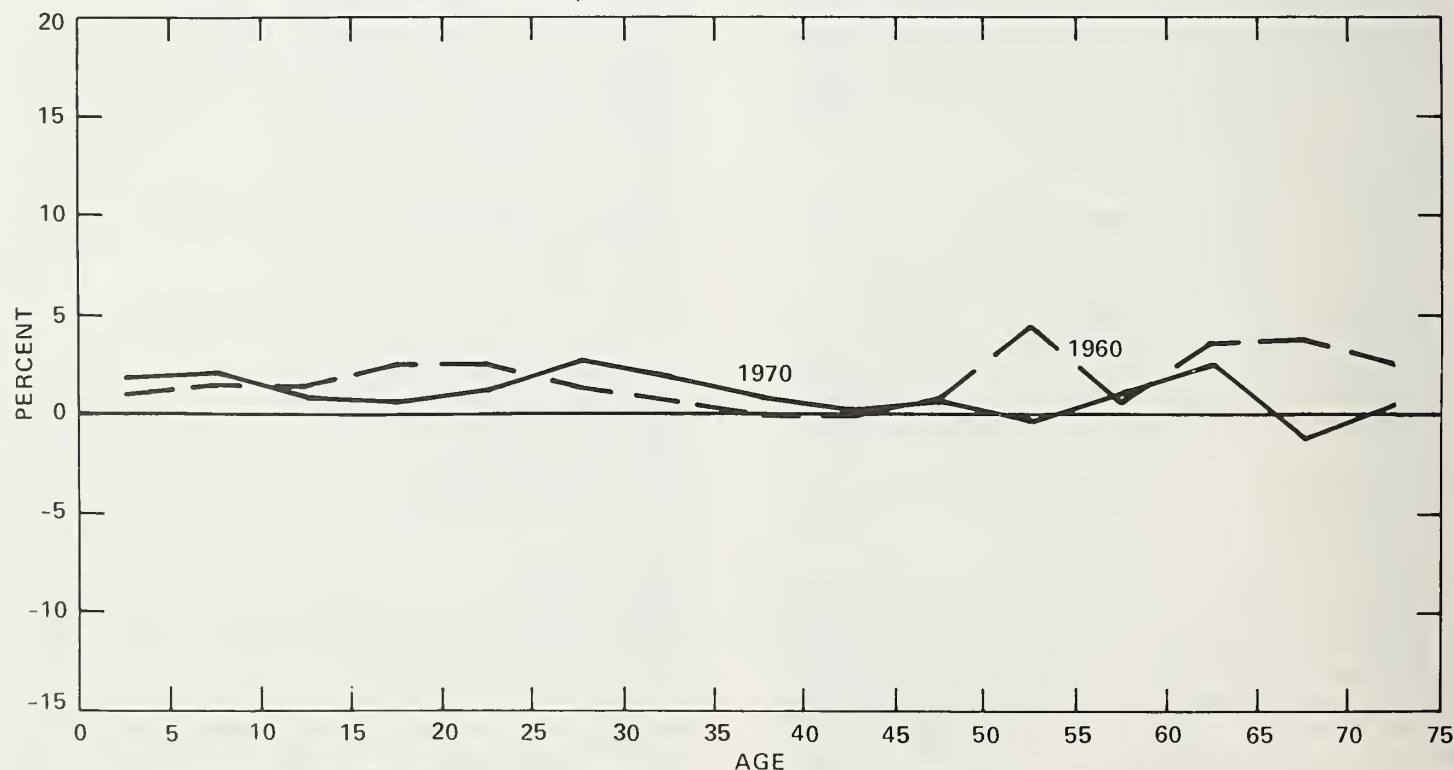
According to the preferred set of estimates, undercoverage of Negro males and females at ages 25-34 and 35-44 remained about the same or deteriorated somewhat (males 35-44). There was little change also for Negro males 45-54 and 55-64, but the coverage of Negro females at these ages substantially improved. Since gains for some ages among adult Negro males 20 and over were almost wholly

Figure 1. COMPARISON OF PERCENT NET UNDERCOUNTS FOR WHITE MALES IN 1960 AND 1970, BY AGE



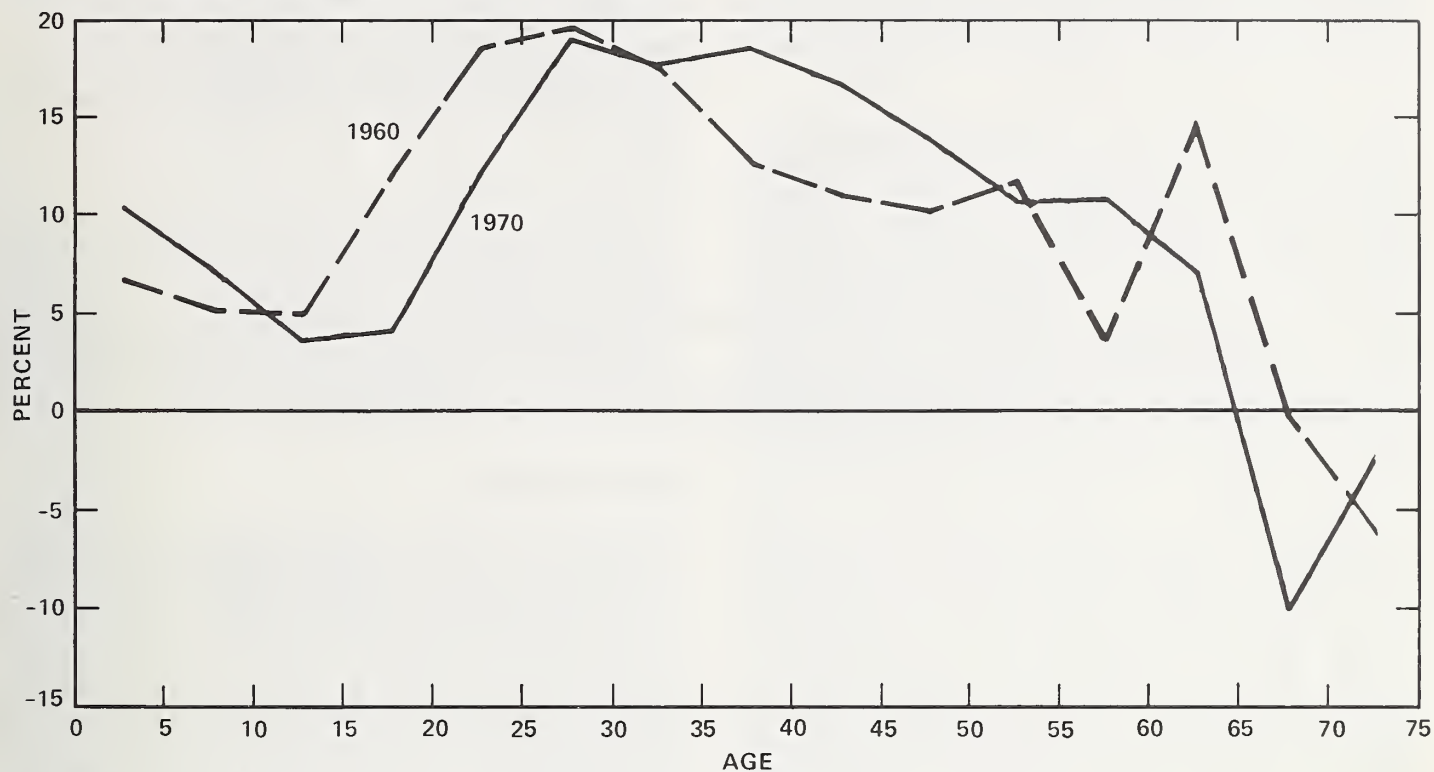
NOTE: ESTIMATES FOR 1970 ARE BASED ON ADJUSTED CENSUS DATA. A NEGATIVE SIGN DENOTES A NET CENSUS OVERCOUNT.

Figure 2. COMPARISON OF PERCENT NET UNDERCOUNTS FOR WHITE FEMALES IN 1960 AND 1970, BY AGE



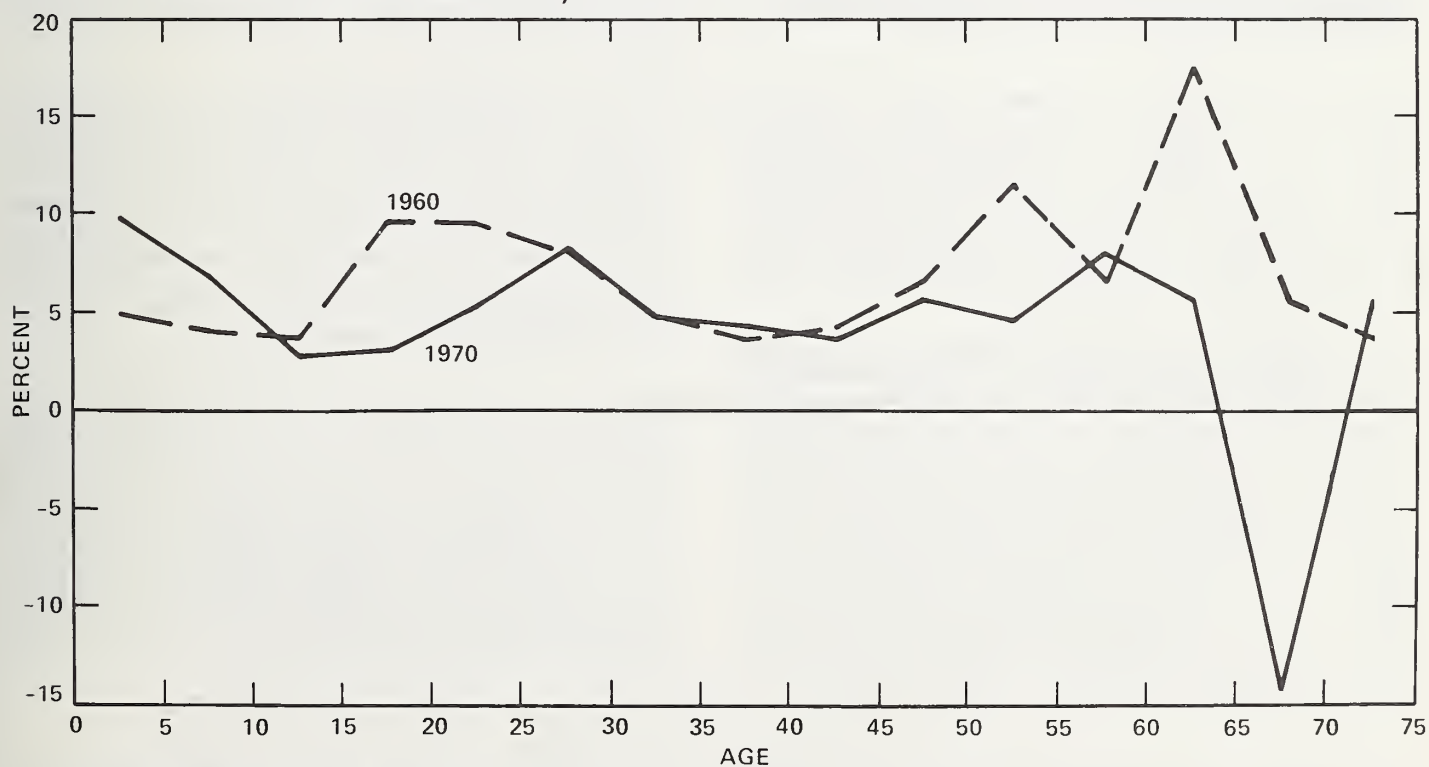
NOTE: ESTIMATES FOR 1970 ARE BASED ON ADJUSTED CENSUS DATA. A NEGATIVE SIGN DENOTES A NET CENSUS OVERCOUNT.

Figure 3. COMPARISON OF PERCENT NET UNDERCOUNTS FOR NEGRO MALES IN 1960 AND 1970, BY AGE



NOTE: ESTIMATES FOR 1970 ARE BASED ON ADJUSTED CENSUS DATA. A NEGATIVE SIGN DENOTES A NET CENSUS OVERCOUNT.

Figure 4. COMPARISON OF PERCENT NET UNDERCOUNTS FOR NEGRO FEMALES IN 1960 AND 1970, BY AGE



NOTE: ESTIMATES FOR 1970 ARE BASED ON ADJUSTED CENSUS DATA. A NEGATIVE SIGN DENOTES A NET CENSUS OVERCOUNT.

offset by losses at other ages, the coverage rate for this group remained about the same. About one out of eight Negro males 20 or over was missed in both 1970 and 1960. The pattern of changes in error rates for whites between 1960 and 1970 showed a considerable similarity to that for Negroes.

If these estimates of error rates have even approximate validity, there appears to have been a pronounced change in the age pattern of net census error rates from 1960 to 1970. Figures 1 to 4, graphic representations of the variation of error rates by age, comparing the rates for 1960 and 1970, reveal this change of pattern. It is evident from the graphs that each sex-race group experienced a change in the age pattern of net census error rates between 1960 and 1970 and, further, that there were great similarities in the way the error rates for each sex-race group changed between 1960 and 1970. Figure 5 compares the graphs for the four sex-race groups for 1970 with one another and figure 6 compares the graphs of these groups in 1960. For the most part, the graphs show the same general age pattern in each year and the same ranking of the sex-race groups (i.e., Negro male, Negro female, white male, and white female).

In summary, improvements in coverage were registered in a number of aspects of the 1970 Census. However, in the 1970 Census, as in the 1960 Census, a substantial number of persons—both whites and Negroes—were not counted. The proportion of the Negro population not counted remains high and there is still a wide gap in the coverage of whites and Negroes, as was the case in 1960. A disproportionate share of the omissions occurred among Negro children under 5 years of age, both boys and girls, and adult Negro males 20 to 49 years of age, but especially at ages 25 to 44 years. Coverage rates for Negro male youths improved sharply between 1960 and 1970 but coverage of Negro males at most other ages remained about the same or deteriorated.

Review of Selected Aspects of the Basic Data and Methodology

The estimates of net census errors presented here for the different age, sex, and race categories differ in reliability because of differences in the quality of the basic data available for the evaluation and in the adequacy of the methods and assumptions employed in preparing the estimates. The reliability of the estimates is also believed to vary with the quality of the census data being evaluated; that is, it is more difficult to measure the error in poor data than in good data. It has not been possible to assign specific measures of reliability to the estimates, however.^{1 2}

We can at least broadly distinguish the reliability of the estimates for ages under 35 and ages 35 and over in 1970, and the estimates for ages under 25 and 25 and over in 1960. The estimates for the younger ages are considered rather reliable since they were derived by a component method (i.e., by directly combining recorded data on births, deaths, and net migration) and the principal component (i.e., births) was corrected for underreporting on the basis of actual test results (see below). Furthermore, the younger the age the more reliable the estimates are believed to be. The reliability of the figures for the older ages in this range is limited mainly by the uncertainty pertaining to the international migration component. In spite of the possible inadequacies of the data, the amount of error in the net census undercount rates at the ages of childhood and youth is considered to be small.

The estimates for the older ages (35 and over in 1970) are subject to greater error since they were derived by relatively indirect methods involving a series of major assumptions, each subject to error (ages 35 to 64 in 1970), or by adapting symptomatic data for which adequate corrections are not available (65 and over in 1970). Greatest uncertainty pertains to the estimates of net census error for the ages 35 to 64 years of age in 1970, as is explained further below.

In general, the estimates of net census errors for the white population are considered more reliable than the corresponding estimates for the Negro population because of the superior quality and greater volume of data available for the evaluation and the more limited scope of the assumptions employed. The lower level of accuracy of the census data for Negroes than for whites is also believed to be a factor indirectly affecting the relative reliability of the estimates of error by race. For a similar reason the estimates of error may be less reliable for males than for females.

BIRTH STATISTICS

As stated, the estimates of the expected population under age 25 in 1960 and under age 35 in 1970 are based directly on registered births adjusted for underregistration, registered deaths, and estimates of net migration. These ages correspond to the birth cohorts of 1935 and later years, years for which the entire United States (excluding Alaska and Hawaii) is included in the Birth Registration Area and for which adequate estimates of underregistration can be developed. Because of the fact that births are much more numerous than deaths or net "migrants" as factors of population growth at the ages under 35, the effect of errors in the estimates of births and, more particularly, in the estimates of completeness of birth registration, on estimates of net census undercounts, is greater than the effect of errors in the components of deaths and net migration. The ages for which the estimates of corrected population are based directly on births account for 58 percent of the population in 1970; hence, the quality of the birth statistics since 1935 is of paramount importance in our calculations.

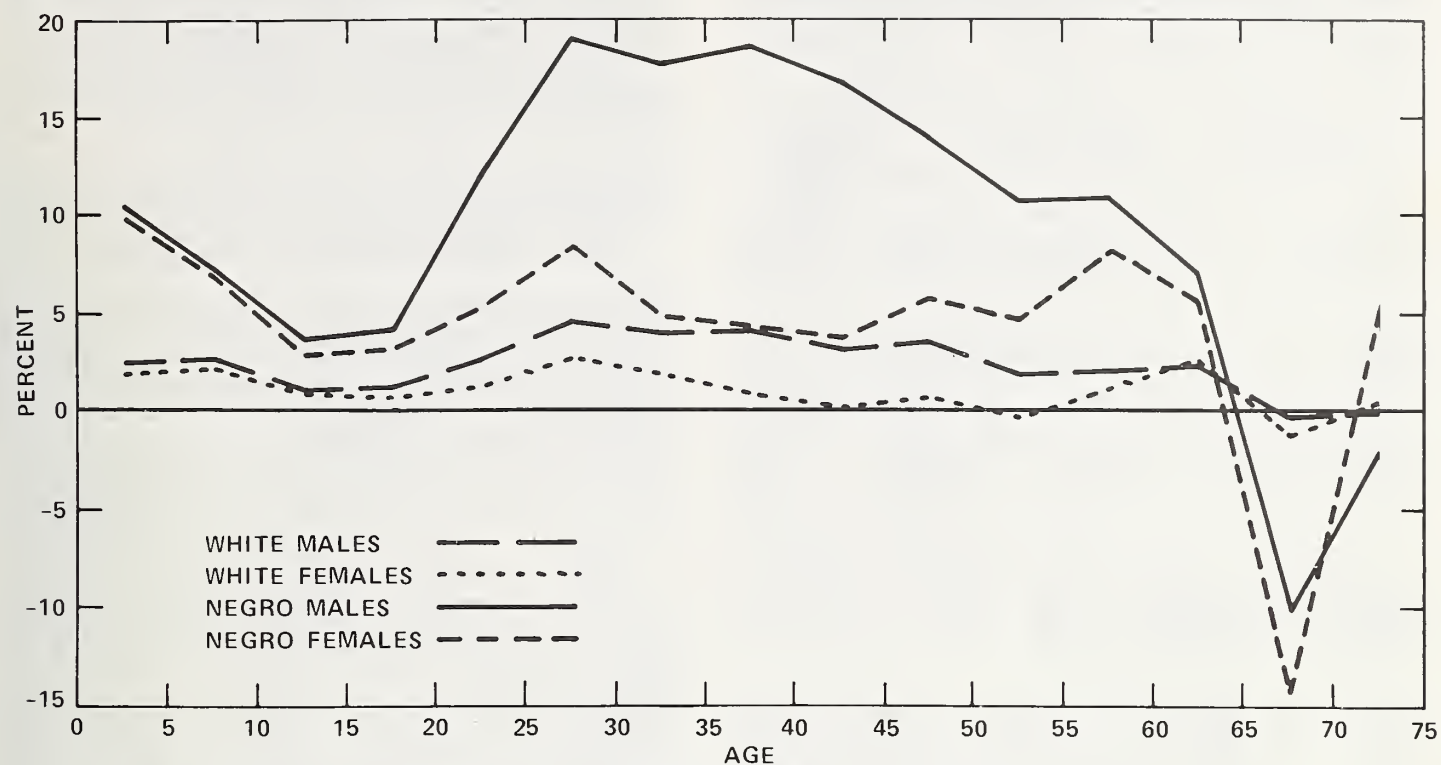
Tests of the completeness of registration of births were conducted in 1940, 1950, and 1969-70, relating to the completeness of registration of births in early 1940, early 1950, and the years 1964-68.^{1 3} We want to review the adequacy of the estimates of underregistration, in total and by race and sex. We shall consider specifically (1) the validity of the tests, including the consistency of the results, and (2) the adequacy of certain assumptions in applying the test results. In the latter connection we shall consider the effect on the number of births of varying the annual trend in the birth correction factors between 1940 and 1950.

All three tests consisted, essentially, of matching birth records covering some specified period of time immediately preceding a census or survey with records of infants or children born during that period enumerated in the census or survey. The first two tests involved a match of infants under 3 or 4 months of age enumerated in the 1940 or 1950 censuses with birth certificates filed just before or about the time of the censuses. The 1964-68 test involved a match of children under 5 years of age reported in the Current Population Survey and the National Health Survey in 1969-70 with birth certificates filed in 1964-68. The principal results of the three birth registration tests are given in table A.

^{1 2}Some research on quantifying the uncertainty in these estimates is under way. Robert E. Fay III has been conducting research at the U.S. Bureau of the Census and the University of Chicago designed to develop "smallest acceptable confidence limits" for existing estimates of census coverage error.

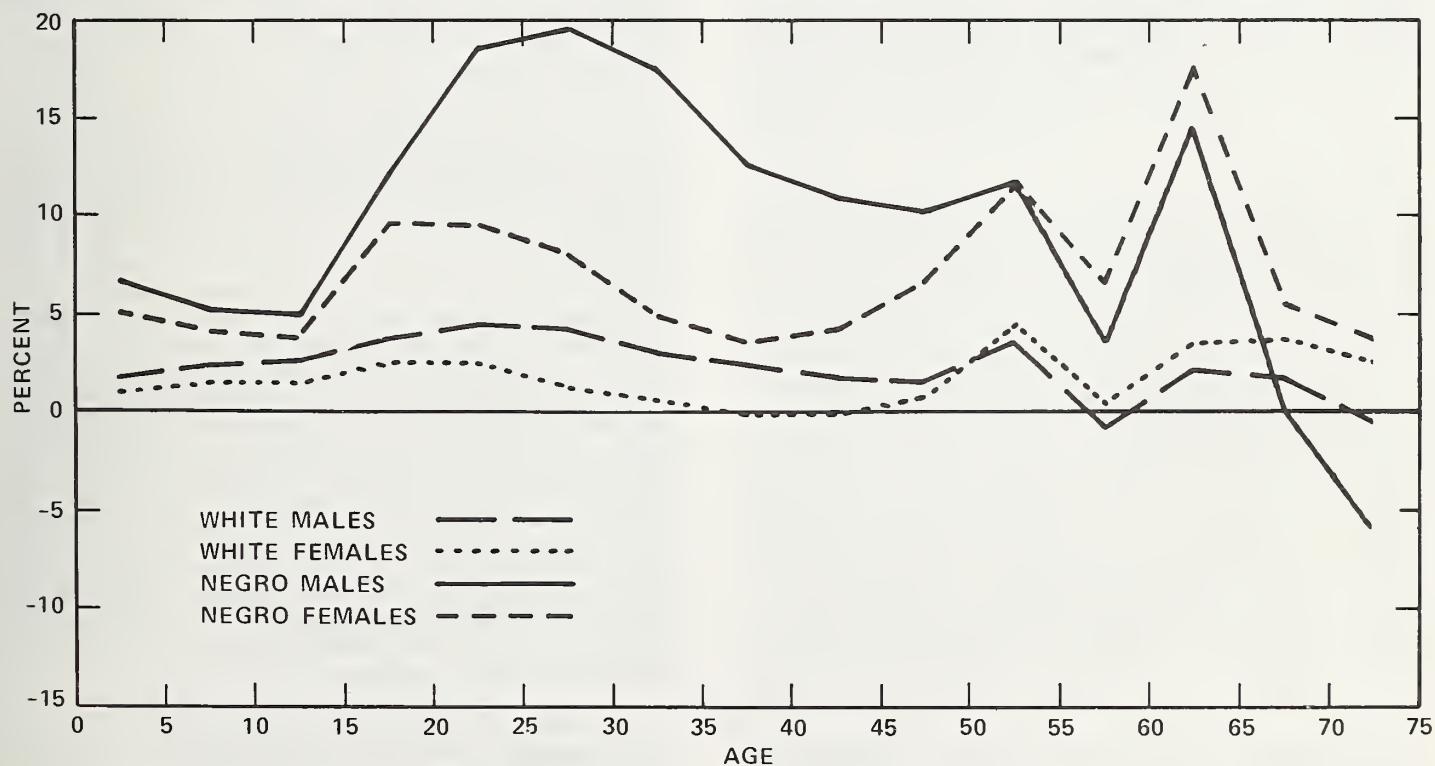
^{1 3}For a description of the most recent test, see U.S. Bureau of the Census, Census of Population and Housing: 1970, Evaluation and Research Program, PHC(E)-2, Test of Birth Registration Completeness, 1964 to 1968, U.S. Government Printing Office, Washington, D.C., 1973.

Figure 5. COMPARISON BY RACE AND SEX OF PERCENT NET UNDERCOUNTS, BY AGE: 1970



NOTE: ESTIMATES FOR 1970 ARE BASED ON ADJUSTED CENSUS DATA. A NEGATIVE SIGN DENOTES A NET CENSUS OVERCOUNT.

Figure 6. COMPARISON BY RACE AND SEX OF PERCENT NET UNDERCOUNTS, BY AGE: 1960



NOTE: A NEGATIVE SIGN DENOTES A NET CENSUS OVERCOUNT.

Table A. Percent Completeness of Birth Registration by Race and Hospital-Occurrence: 1940, 1950, and 1964-68

Race and hospital-occurrence	1940 percent ¹	1950 percent ¹	1964-68 ²	
			Percent	Estimated standard error
All classes	92.5	97.9	99.2	0.1
In hospitals	98.5	99.4	99.4	0.1
Not in hospitals	86.1	88.2	93.7	1.3
White	94.0	98.6	99.4	0.1
In hospitals	98.6	99.5	99.5	0.1
Not in hospitals	88.2	88.2	94.4	3.0
Negro and other races	82.0	93.5	98.0	0.3
In hospitals	96.3	98.2	98.6	0.2
Not in hospitals	77.2	88.2	93.4	1.4

¹ From publications of the National Center for Health Statistics.

² U.S. Bureau of the Census, Census of Population and Housing: 1970, Evaluation and Research Program, PHC(E)-2, Test of Birth Registration Completeness: 1964 to 1968, U.S. Government Printing Office, Washington, D.C., 1973.

Review of registration tests.—The adequacy of the 1940 and 1950 tests and of the Census Bureau's application of the results of the tests has been previously considered in a paper by Siegel and Zelnik.¹⁴ Part of the analysis given here is adapted from that paper. The major issues are (1) the adequacy of the matching operation, (2) the assumption of independence between the completeness of birth registration and census enumeration of infants, (3) the assumption that registration of male births and female births is equally complete, (4) the consistency of reporting race in the census and race on the birth certificate; and (5) the reasonableness and internal consistency of test results. All of these issues apply also to the 1964-68 tests; in addition, since sample data were employed in that test, the test results are subject to sampling error. Finally, the adequacy of the procedure for interpolating the test results should be considered.

1. Adequacy of the matching operation.—Difficulties in establishing matches would lead to an upward bias in the estimates of birth underregistration and, hence, to an upward bias in the estimates of undercoverage. We have no evidence as to whether or not such a bias exists since a direct review of the tests is not possible. A bias of this type can have a serious effect on the estimates, however. Some illustrative calculations on the sensitivity of net undercount rates to the problem of matching are described in the paper by Siegel and Zelnik.¹⁵ We have carried out a similar calculation for the 1969-70 test. A rather extreme assumption has been employed to measure the sensitivity of the estimates of net census undercounts to an overestimate of birth underregistration. We have assumed for illustrative purposes a reduction of one-quarter in the estimates of the incompleteness of birth registration. Table B compares the estimates of net census undercounts for the population under 35 years of age, by age, sex, and race, based on the interpolated official test figures for the completeness of registration of births with estimates employing the above assumption. The effect on the estimates is pronounced for Negro-and-other-races in the age groups 25-34. The estimate of net census

undercount for Negro-and-other-races males is reduced from 15.1 percent to 9.8 percent (adjusted figures) while the estimate of net census error for Negro-and-other-races females is changed from a 5.2 percent net undercount to a net error of zero. There is no evidence, however, to support the particular assumption made for these illustrative calculations.

Table B. Estimated Percents of Net Undercount of the Population Under 35 Years of Age, by Age, Sex, and Race, Based on Interpolated Official Rates for Birth Underregistration and Based on Reduced Rates for Underregistration: 1970

(Results of the Birth Registration Tests of 1940, 1950, and 1964 to 1968 were used to derive the annual interpolated official rates. Base of percent is the corrected population. A minus sign (–) denotes a net overcount. Estimates are based on census figures which have been adjusted for race misclassification in the complete count and for an overstatement of centenarians)

Sex and age (years)	White		Negro and other races	
	"Official" birth under-registration rate	One-quarter reduction in birth under-registration rate	"Official" birth under-registration rate	One-quarter reduction in birth under-registration rate
Male				
Under 5 . . .	2.3	1.9	10.3	9.1
5 to 14 . . .	1.7	1.3	5.5	3.5
15 to 24 . . .	1.8	1.2	5.5	2.1
25 to 34 . . .	4.3	2.7	15.1	9.8
Female				
Under 5 . . .	2.0	1.6	9.7	8.4
5 to 14 . . .	1.5	1.1	4.6	2.6
15 to 24 . . .	0.8	0.2	2.7	–0.5
25 to 34 . . .	2.4	1.0	5.2	–

– Represents zero.

2. Assumption of independence between the completeness of birth registration and census enumeration of infants.—The estimates of underregistration of births obtained in the tests are based on the assumption that the percent registration of infants or children enumerated in the census or survey is the same as the percent registration of all children, including those not enumerated. It is possible that for the children not enumerated the proportion whose birth was not registered was higher than for those enumerated. If this is the case, the estimates of the completeness of birth registration actually used overstate the true level and, hence, the estimates of expected population based on adjusted births have a downward bias. Of course, if the census omission rate of infants or children is small, the effect of differential registration would be negligible. Studies conducted by the National Office of Vital Statistics in which the Chandra Sekar and Deming technique¹⁶ was applied to the 1940 and 1950 test results to overcome the bias mentioned indicated that underenumeration of infants had little effect on the estimates of registration completeness. In fact, Siegel and Zelnik showed that rather extreme assumptions of the dependence between underregistration of births and underenumeration of children in 1950 have only a slight effect on the level of the completeness of registration.¹⁷

3. Assumption that registration of male births and female births is equally complete.—We would expect the completeness of birth registration to be about the same for boys and girls. Failure to

¹⁴ Jacob S. Siegel and Melvin Zelnik, "An Evaluation of Coverage in the 1960 Census of Population by Techniques of Demographic Analysis and by Composite Methods," Proceedings of the Social Statistics Section, 1966, American Statistical Association.

¹⁵ Ibid., p. 74.

¹⁶ Ibid., p. 73.

¹⁷ Ibid., p. 74.

register births would very probably operate as a random factor not sensitive to sex of child for births in hospitals. There is no formal evidence on this question from the 1940 and 1950 Birth Registration Tests. The National Office of Vital Statistics did investigate the matter briefly in connection with the 1950 Birth Registration Test by "spot checking" some States and some population groups, but no significant differences were found. Estimates of the percent of boy babies and girl babies registered, by race, were developed in connection with the 1964-68 test. The figures for the sexes were insignificantly different for each of the two race categories (white, Negro-and-other-races), but of course large differences could hardly occur since the overall level of registration is so high.

We would expect the percents of net undercount for boys at ages under 15 to be the same as for girls at ages under 15, but in the last several censuses the estimates of net undercount rates for boys consistently exceed those for girls. (The comparative figures are shown in table 7.) It is difficult to explain why parents would fail to report boys more often than girls in censuses. The difference may reflect an error in our assumption regarding the completeness of birth registration by sex; perhaps registration of boy babies is more complete than that of girl babies and the undercount rates are, in fact, more nearly equal.

4. Consistency of tabulating race in census and in vital records.—We have investigated the possibility that there is an upward bias in the reporting of "nonwhite" race on birth certificates vis-a-vis reporting of "nonwhite" race in the census, which might lead to an overstatement of the estimated undercount of Negroes-and-other-races in the census. Some information concerning the consistency of the reporting of race on birth records and census records is available from the 1950 Birth Registration Test. A portion of the match records (births in March 1950) were used to determine the consistency of information obtained in the census and on birth certificates. These match data indicate that Negroes-and-other-races were overreported in the 1950 Census relative to the tabulation of that group of birth records. This does not support the view, therefore, that census undercounts for Negroes-and-other-races are biased upward because of inconsistency of tabulating race in the two records. Some indication of the excess of Negroes-and-other-races in the 1960 Census relative to births so classified is given by census figures on "nonwhite" Puerto Ricans and "nonwhite" persons of Spanish surname, since in the birth registration system all Mexicans and Puerto Ricans are classified as white. The resulting "overenumeration" of Negroes-and-other-races in 1960 is an extremely small percentage of the total Negro-and-other-races population.

5. Reasonableness and internal consistency of test results.—One way of evaluating the test results is to consider their internal consistency and reasonableness. As expected, the percent registration of white and Negro-and-other-races births in hospitals was consistently very high at all dates and there were at most only small increases between the various test results. The percent of births occurring outside of hospitals which are registered was expectedly much lower than the percent for births occurring in hospitals, particularly in 1940 and 1950 and among Negroes-and-other-races. The improvement over time for Negro-and-other-races births not occurring in hospitals was steady and substantial; for whites, the progression is less regular and a question is raised by the figures for 1940 and 1950, which show a lack of improvement between these years. An examination of the separate test results for geographic regions for 1940, 1950, and 1964-68 also supports the view that the test results are generally reasonable and consistent.

Adequacy of interpolation of test results.—Estimates of the completeness of registration for the years between 1940 and 1950 and between 1950 and 1964-68 were derived by interpolating between the test results. Specifically, it was assumed that the percent incompleteness of birth registration, considered separately with respect to hospital and non-hospital births by race (four categories) for each State, declined linearly between 1940 and 1950

and that the percent incompleteness of birth registration, considered separately for hospital and non-hospital births by race (four categories), declined at a constant rate between 1950 and 1966, the central year of the most recent test period. Estimates of the completeness of birth registration for years subsequent to 1966, i.e., 1967 to 1970, were derived by linear extrapolation of the percents for 1950 and 1966, separately by race. Estimates of the completeness of birth registration for the years 1935-40 were derived on the assumption that the percent completeness of birth registration by occurrence in and out of hospital, by race, for States was the same as in 1940. In effect, an estimated change in overall registration for each race group comes about from changes in the proportion utilizing hospitals for childbirth.

Because of the irregular trend of the annual percents for 1964 to 1968 shown by the 1964-68 test, resulting in part from large sampling errors, they were not used directly to secure annual figures on births. The estimates of adjusted births obtained directly from the 1964-68 test results for the years 1964-68 and the estimates obtained by interpolation and extrapolation of the 1950 and 1964-68 test results for these years differ relatively little (numbers in thousands):

Race	Test results	Interpolated results	Difference	
			Number	Percent
All classes	18,572	18,560	-12	-0.1
White	15,413	15,405	-8	-0.1
Negro-and-other-races	3,159	3,155	-4	-0.1

We have considered the effect, on the estimates of births, of varying the annual trend assumed for the percent of births registered in the four basic categories (race, hospital-occurrence). The only period for which such alternative estimates were actually made was 1940-50, corresponding to the population 10 to 19 years of age in 1960 and 20 to 29 years of age in 1970. Alternative reasonable procedures of interpolation would have only a minor effect on the estimates of births for 1950 to 1970.

The test calculations which were carried out for 1940-50 were intended to measure the reduction in the numbers of births which would occur during the decade if the underregistration rate (for the four basic categories of births) declined more rapidly in the early part of the decade than during the later part, rather than linearly as in the official estimates. Improvement in birth registration may have been more rapid during the early forties than during the late forties if our involvement in World War II gave an impetus to the trend of birth registration. Consequently, we may have overstated the number of births in the 1940-50 decade and, as a result, we may have overstated the net undercount of children under 10 in 1950, 10 to 19 in 1960, and 20 to 29 in 1970. Accordingly, we have recalculated the corrected births for each year 1940 to 1950 for each race on the assumption that the percent of births not registered (in the four basic categories) declined at a constant rate between 1940 and 1950. We have recalculated the births on a second alternative assumption also, namely, that the 1950 test values were reached by 1945, following a linear trend between 1940 and 1945. These new assumptions mainly affect the series, Negro-and-other-races births not in hospitals, since the changes in the percent registration for the other three series were near zero or small.

The differences between the estimates of births obtained by the various methods considered are trivial or quite small, except for Negroes-and-other-races under the assumption of a "linear trend, 1940-45; no change 1945-50." The modifications in the estimates of net undercount of persons in the appropriate cohorts (10 to 19 in 1960 and 20 to 29 in 1970) are also trivial for whites, small for Negro-and-other-races when geometric interpolation is substituted

for linear interpolation, and substantial (near two percentage points) only for Negro-and-other-races under the assumption of a "linear trend, 1940-45; no change, 1945-50." In view of the small differences between the estimates based on the linear trend and those based on the geometric trend between 1940 and 1950, and the expectation of still smaller differences between 1950 and 1970, experimentation with alternative procedures of interpolation was not carried out for 1950-70.

The assumption previously used for 1935 to 1939, that the "test" results for 1940 in the four basic categories of births (by States) were applicable to each year 1935 to 1940 without change, yields the most conservative estimates of net undercount (in the ages 20-24 in 1960 and 30-34 in 1970). Any other reasonable assumption, e.g., that there was an increase in the percent of births registered in these categories, would raise the already very high estimates of net undercounts. No alternative estimates of registration completeness were evaluated for this period, therefore.

DEATH STATISTICS

In preparing these estimates of the corrected population, the allowance for mortality was made variously on the basis of death statistics and official U.S. life tables and model life tables. Actual death statistics were employed for the mortality allowance from birth to current age for the cohorts under 35 years of age in 1970 (or under 25 in 1960). Actual death statistics were also employed to carry the total population forward or backward between 1940 and 1970 and the population in the cohorts 35 and over in 1970 (or 25 and over in 1960) forward or backward between 1950 or 1960 and 1970. For these purposes, the reported figures were used without any adjustment for underregistration, or for the misreporting of age, sex, or race on the death certificate. Life tables were employed at various stages in the calculations for carrying the cohorts 35 to 64 years of age in 1970 (or 25 to 54 in 1960) forward from birth to 1950 or 1960 and in calculating expected sex ratios. For the most part, these life tables are official U.S. life tables, are based on observed death rates without any adjustment for errors in the death statistics or the population figures, and apply only to the Death Registration States.

It is likely that some deaths are not registered and, even more likely that there is some misreporting of the characteristics of decedents, particularly age. There is the further possibility that there is a difference between the pattern of age misreporting for decedents and the pattern of age misreporting for the population; any difference would tend to distort age-specific death rates and life table survival rates calculated from the data.

No national test of the completeness of death registration in the United States has ever been conducted. It is very probable that registration is complete or nearly complete, in view of the strict legal requirements for registration and the needs of the survivors for proof of death. On the other hand, the requirements could be evaded more easily in the case of infants; hence, if there is underregistration, it is probably greater for infants than for older persons.

The misreporting of the age of decedents would appear to be the more serious problem. Two studies that provide evidence of the misreporting of age on death certificates have been carried out. They are both national studies but the reference periods are relatively brief.

The first, the so-called Chicago Mortality Study, compared age on the death certificate with age in 1960 census records for deaths which occurred during the 4-month period, May through August 1960.¹⁸ This study found that, for the white group, net difference

rates oscillated around zero for most of the age intervals. From the viewpoint of population estimation, the extent of inconsistent age classification is relatively unimportant at the younger ages since most deaths occur at the older ages. At ages 45 and over, the extent of inconsistent age reporting is much greater for Negroes-and-other-races than for whites. For Negroes-and-other-races, a substantially smaller number of deaths would have been classified in each of the age groups 45 to 69 on the basis of census age than on the basis of death-certificate age and a substantially larger number would have been classified in each of the age groups over 70 years.

For whites the effect of computing net undercount rates on the basis of deaths or death rates using census age would be negligible or minor. On the other hand, the effect on net undercount rates for Negro-and-other-races could be substantial, particularly at the older ages.¹⁹ The actual effect on net undercount rates of adjusting deaths for age reporting biases cannot be reliably stated on the basis of this analysis, however, because we cannot safely generalize on the basis of so brief a period and deaths tabulated according to census age cannot be taken as a valid standard to represent deaths by age.

The second study involves a comparison of death rates calculated from Social Security (Medicare) records and conventional death rates from the registration system, at ages 65 and over for 1968.²⁰ The former set of rates is believed to represent mortality levels rather accurately, at least at the "younger" ages, because coverage of the population and deaths is essentially complete, and ages of deaths and population are identified from the same record and are validated. These rates implicitly tend to allow for understatement and age misreporting of deaths and population. The latter set of death rates, that is, those based on registration statistics and population estimates, are subject to these types of errors. For the white population the "Social Security" death rates are rather similar to the "vital statistics" death rates, but for the Negro-and-other-races population the two sets of rates are quite different. The death rates from the registration system are generally higher than those from the Social Security tabulations at ages 65-69 and 70-74 and lower at the older ages. Although the effect of these differences on net undercount rates has not been measured, the differences also suggest that the net undercount rates for Negroes-and-other-races at the upper ages could be substantially altered if death statistics were available which were not subject to age biases.

The assumption that life tables for the States in the Death Registration Area represent mortality adequately in the entire United States in the years before 1930 merits consideration. A comparison of the values for life expectation from the life tables for the original Death Registration States in 1929-31 and the corresponding values in the life tables for entire United States in 1929-31 indicates little difference. In the Coale-Rives calculations a slight adjustment was made for this difference in the life table values for earlier years. In connection with the calculations for years prior to 1930 of expected sex ratios for 1960 and 1970, the relative differences between survival rates for males and females from the life tables for the Death Registration States are assumed to apply to the entire United States. Furthermore, sex ratios of survival rates in the life tables for the original Death Registration States in 1900-02 were assumed to apply to the years prior to 1900, for the cohorts under 25 or so in 1900. This assumption is supported by the fact that sex ratios of survival rates in model life tables with high mortality levels are relatively insensitive to small changes in the level of mortality.

¹⁸M.G. Sirken, J.S. Siegel, and R.S. Murphy, "Errors in Postcensal Population Estimates Due to Inconsistent Age Reporting on Death Certificates and Census Records," unpublished paper presented at the 1969 annual meeting of the Population Association of America, Atlantic City, N.J., April 12, 1969.

²⁰Francisco Bayo, "Mortality of the Aged," *Transactions of the Society of Actuaries*, Vol. 24, 1972, pp. 1-24.

¹⁸U.S. Public Health Service, National Center for Health Statistics, "Comparability of Age on the Death Certificate and Matching Census Record, United States, May-August 1960," *Vital and Health Statistics*, Series 2, No. 2, by Thea Z. Hambricht, Washington, D.C., June 1968, tables B and 8.

DATA ON NET IMMIGRATION

The figures on net immigration for the 1960 to 1970 decade employed in this study should be considered as estimates subject to considerable error. The various estimates of net civilian immigration and net intercensal increase given in table 1 are intended to reflect this uncertainty. The alternative estimates of net civilian immigration shown in that table range from 3,387,000 to 4,137,000. The lower figure is 500,000 below the preferred estimate of 3,887,000 and the higher figure is 250,000 above it. (These figures do not represent the full range of uncertainty in the estimates of migration; it is possible in fact that immigration was 500,000 greater or emigration 1,000,000 greater, than the preferred estimate.) The components of the preferred estimate, along with net military movement, are as follows:

Net civilian immigration	3,887,000
Alien immigration	3,149,000
Net arrivals from Puerto Rico	161,000
Net arrivals of civilian citizens	446,000
Parolees	382,000
Other alien and citizen emigration	(-)250,000
Net military movement to posts overseas	(-)460,000

The largest category and firmest component, alien immigrants admitted, numbers 3,149,000. It was obtained by a systematic and careful registration of persons admitted for permanent residence into the United States on the basis of entry documents. The figure includes one group of aliens "admitted for permanent residence," so-called commuters, who do not intend to establish residence in the United States and who, therefore, may properly be excluded from the count of immigrants. The number who never move to the United States cannot be determined but it is known that there were at least 50,000 daily commuters during the latter part of the decade.

There are also three smaller categories contributing to civilian immigration—net arrivals from Puerto Rico, net arrivals of civilian citizens, and parolees. These categories also allow for the corresponding emigration. The figure for net arrivals from Puerto Rico, 161,000, represents a balance of all movements to and from the island, including tourists; hence, a small bias in the count of arrivals or departures could result in a large relative error in the net migration balance, but it is clear that the net movement is small. The estimate of net arrivals of civilian citizens, 446,000, covers only the net movement of civilian employees of the Federal government and their dependents. It is a residual estimate which is affected by the accuracy of the tabulations of Federal civilian employees overseas, their dependents, and the dependents of U.S. Armed Forces overseas for 1960 and 1970, and by the completeness of reporting births to citizens overseas during the decade. The reporting of births to citizens overseas is believed to be somewhat incomplete because births in U.S. military hospitals only are covered. Parolees consist essentially of Cubans who entered the United States on a temporary basis and whose status had not been converted to that of immigrant aliens.

The estimates of immigration do not include any allowance for in-movement of civilian citizens other than Federal employees and Puerto Ricans or for unrecorded alien immigration, particularly illegal immigration. Statistics on U.S. citizens overseas, a type of data that might be used for preparing an estimate of net movement, are not complete and consistent for 1960 and 1970, and use of passenger statistics, which relate to gross passenger movement, presents the possibility of serious error. Conclusive evidence regarding the volume of in-movement of civilian citizens is lacking, therefore,²¹ and no allowance has been made for this movement.

Some indication of the extent of illegal immigration is given by statistics on apprehensions of illegal entrants. During the 10-year period 1960-1970 about 845,000 persons were apprehended who had entered the United States illegally (mostly from Mexico or Canada). Approximately 30 percent of these were repeaters. Of course, the number who entered illegally without being apprehended and the number of the latter who stayed as residents are not known. In view of the complete uncertainty as to the volume of illegal immigration, no allowance has been made for this movement.

Direct information on the emigration of U.S. residents between 1960 and 1970 is not available. Emigration to Puerto Rico and of Federal employees and their dependents has been allowed for in the estimates of net immigration of these groups. Some measure of emigration of other U.S. residents, both aliens and citizens, is needed. The principal estimate of emigration used here, 250,000, is based on data on immigration from the United States given in official publications for selected foreign countries and on data compiled by the Social Security Administration showing the migration of OASDHI beneficiaries to and from the United States.²² More than half of the estimated 250,000 emigrants were U.S. citizens and more than half went to Canada.

This estimate is subject to considerable error as an estimate of total emigration (excluding emigration of Puerto Ricans and Federal employees). Only five foreign countries were covered, although emigrants have gone to many other countries. Furthermore, the statistics on immigration into these countries were generally restricted to persons born in the country of origin (i.e., United States). Alien residents and naturalized citizens may also have emigrated, but foreign countries do not normally tabulate immigrants by country of last usual residence. A preliminary analysis of data from the alien registrations of 1962 and 1970 suggests that the volume of emigration may have been several hundred thousand greater than estimated here. It appears likely then that the emigration of aliens and citizens is not fully covered by the estimate of emigration we have used.

In sum, our figures for both civilian immigration and civilian emigration are probably too low but it is not possible to give confident estimates of the understatement of each. The evidence suggests strongly that emigration is more understated than immigration in our figures and hence that net immigration is overstated. Further investigation of the volume of net immigration will be made on the basis of data on the foreign-born population in the censuses of 1960 and 1970, the gross passenger statistics for 1960 to 1970, and the alien registrations for various years in the 1960's. As a working estimate of net civilian immigration for the present purpose, we have taken the figure of 3,887,000, derived as explained above.

In addition to net immigration of civilians, an allowance has been made for the net movement of U.S. Armed Forces from the United States to posts overseas. The estimate of 460,000 was obtained as a residual on the basis of Armed Forces strength overseas in 1960 and 1970 and deaths of military personnel overseas during the decade.

The estimated total net immigration into the United States between 1960 and 1970 is 3,427,000. Assuming that births and deaths are correctly measured, this figure implies an error of closure of 238,000 between the 1960 and 1970 Censuses.

MEDICARE DATA

As stated, estimates of net census errors for ages 65 and over in 1970, and 55 and over in 1960, were developed from "Medicare" enrollments in the B and D sets of estimates. These estimates differ

²¹ Akers, Donald S., "Immigration Data and National Population Estimates for the United States," *Demography*, Volume 4, No. 1, 1967, pp. 262-272.

²² Richard Irwin and Robert Warren, "American Immigration in the Sixties," *Proceedings of the Social Statistics Section, American Statistical Association*, 1970, pp. 278-283.

from the corresponding "Conference" estimates (set A estimates) and from the estimates (Negro population only) obtained from the Coale-Rives study (set C estimates). These estimates vary little for whites, but greatly for Negroes. For example, the Medicare estimates show a substantial net overcount of aged Negro males in 1970 (3.1 percent) while the Conference estimates reflect a substantial net undercount for this group (4.3 percent) and the Coale-Rives figures show a small net overcount (1.7 percent). The range of difference is particularly large at ages 65 to 69 (10.1 percent net overcount, 5.9 percent net overcount, and 3.7 percent net undercount). Similar differences appear for Negro females. The estimates of the white and Negro populations for 1970 based on Medicare enrollments are believed to be more accurate than the corresponding Conference figures, particularly the estimates for the Negro population, and the Medicare estimates for the Negro population are probably more accurate than the corresponding estimates developed from the Coale-Rives study.

Yet there is some uncertainty about how completely and accurately Medicare has enrolled the elderly population. On the one hand, the coverage of the elderly population by Medicare is believed to be substantially complete (particularly when supplemented by the number of recent immigrant aliens, the one group excluded by law from the program, and by the number of Federal employees and annuitants who are not enrolled), because of the extensive coverage of the population under Social Security, the low premium for medical insurance, and the considerable efforts of the Social Security Administration to enroll all aged persons. Furthermore, in general, age misreporting is minimal because proof of age is required before any benefits are allotted. On the other hand, some persons legally entitled to enroll are almost certainly omitted from the Medicare rolls, simply because they have failed, intentionally or unintentionally, to take advantage of their opportunity to enroll, and age misreporting may be substantial at the older ages where the age requirement is obviously met. Persons entitled to Social Security benefits and receiving cash benefits would automatically be enrolled for hospital insurance.²³ However, all persons must register for medical insurance. Some persons may not be enrolled for either hospital insurance or medical insurance because they belong to religious groups opposing acceptance of public health insurance programs, live in geographically remote places, lack money for the premiums,²⁴ are too superannuated to apply, etc. A check of groups that might decline to join because of religious reasons—certain orders of "religious" men and women and priests (found mostly in the Roman Catholic Church), the Amish, Hutterites, etc.—indicated that aged persons belonging to such groups would number only about 14,000. Persons who have simply not applied for social security benefits, even though eligible, those who have not applied under the transitional phase of the law, and those who now have too few quarters of coverage are believed to be much more numerous.

It is reasonable to hypothesize that only a very small proportion of white men are not enrolled, that men are enrolled more completely than women, and that whites are enrolled more fully than Negroes. The sex ratios for the white population 65 and over by age in 1970, and 55 and over by age in 1960, implied by the preliminary "Medicare" estimates, i.e., before adjustment for underenrollment of the population, consistently fall only slightly above the corresponding expected "true" sex ratios (table C). This similarity lends credence both to the expected sex ratios and to the Medicare estimates for the white population since, except for the allowance for population change between 1960 and 1970, they are calculated

quite independently. The relation of the two sets of sex ratios and a *priori* considerations suggest a slight underenrollment of white women in comparison with white men in Medicare. On the other hand, the sex ratios implied by the preliminary Medicare estimates for the Negro-and-other-races population are consistently above the expected sex ratios by a substantial amount, i.e., 5 or 6 points. The relation of these two sets of sex ratios and a *priori* considerations suggest a substantial underenrollment of Negro women in comparison with Negro men in Medicare.

Two sets of estimates of net census errors of the aged population allowing for underenrollment in Medicare, in addition to the allowance for recent alien immigrants and Federal workers and retirees, were prepared for 1970. Both sets of estimates employ expected sex ratios for the population 65 and over by age and race to make the allowance for underenrollment.

Table C. Comparison of Sex Ratios Implied by Preliminary Medicare Estimates and Expected Sex Ratios, for the Population 65 and Over, by Race and Age: 1970 and 1960

Year and age (years)	(Males per 100 females)			
	White		Negro and other races	
	Medicare estimates	Expected ratios	Medicare estimates	Expected ratios
1970				
65 to 69	81.9	81.2	91.4	86.4
70 to 74	73.2	73.0	80.9	76.0
75 to 79	66.9	66.0	71.8	65.3
80 to 84	60.9	59.0	66.7	61.7
85 and over	51.8	51.8	59.0	53.8
65 and over	71.4	70.8	79.5	74.1
75 and over	62.2	61.3	67.6	61.9
1960				
55 to 59	95.2	94.5	99.1	94.2
60 to 64	90.1	89.9	94.7	89.8
65 to 69	86.8	85.9	90.4	83.9
70 to 74	82.9	81.1	87.6	82.5
75 and over	71.7	71.7	81.5	76.3
65 and over	80.3	79.5	86.9	81.2

The first set of estimates incorporates a minimal allowance for underenrollment in Medicare. The specific assumptions are that (1) the "true" numbers of white males aged 65 and over, by age, are represented fully by the preliminary Medicare estimates; (2) the sex ratios of the "true" population 65 and over, by race (white, Negro-and-other-races) and age, (65-69, 70-74, and 75 and over) conform to the expected sex ratios; and (3) the preliminary Medicare estimates for Negro-and-other-races males understate the "true" population by the same percentage as the Medicare estimates for white females. The procedure consisted of (1) applying the expected sex ratios for the white population to the ("true") white male population as estimated from Medicare data, to derive the "true" white female population; (2) determining the rate of understatement of white females implied by the preliminary Medicare estimates and the result in (1); (3) applying the rate of understatement in (2) to the preliminary Medicare estimates for Negro-and-other-races males, to derive the "true" Negro-and-other-races male population; and (4) applying the expected sex ratio for the Negro-and-other-races population to the result in (3), to derive the "true" Negro-and-other-races female population.

²³ Medicare legislation blankets in all persons who had attained age 65 before 1968 but the enrollment file would include only such persons who had applied for hospital insurance. After 1967, certain quarters of coverage were required to qualify for hospital insurance.

²⁴ In accordance with the Medicare law, by 1970 most States had elected to enroll and pay premiums for aged persons who receive cash payments under public assistance programs or who qualify for medical assistance programs.

In accordance with these assumptions, the preliminary Medicare estimates for white females and Negro-and-other-races males 65 and over in 1970 understate the population by 0.9 percent and the estimate for Negro-and-other-races females understates the population by 7.6 percent. Even though these are minimal calculations, they suggest a substantial omission of Negro-and-other-races females from the Medicare rolls. Overall, the understatement in the preliminary Medicare estimate for the population 65 and over is merely 181,000, or 0.9 percent of the final population estimate. This adjustment and the corresponding adjustments by sex and race were incorporated into the Medicare figures to arrive at the "preferred" estimates of the "true" population 65 and over, by age, sex, and race, presented in this report. The general steps by which these estimates were derived from Medicare enrollments are shown in table D.

The second set of estimates includes a maximal allowance for the underenrollment of Medicare. It is based on the assumptions (1) that the expected sex ratios apply to the "true" population; (2) that the preliminary Medicare estimate for white males aged 65 and over understates the population by 3 percent; and (3) that the preliminary Medicare estimate for Negro-and-other-races males understates the population by 4.5 percent, i.e., by 50 percent more than the rate for white males. These assumptions imply an

understatement of 4 percent in the preliminary Medicare estimate for the white female population and of 11 percent in the estimate for the Negro-and-other-races female population. Overall, the figures imply an understatement of 821,000 persons, or 4 percent, in the preliminary Medicare estimate of the total population 65 and over (table D). It is probable that the true measure of the shortfall in the preliminary Medicare estimate lies somewhere between our minimal and maximal figures and closer to the minimal figure.

A Match Study comparing a sample of persons enrolled in Medicare with 1970 Census records was conducted as part of the 1970 Census evaluation program in order to provide information on the gross omissions of aged persons from the census records.^{2,5} Such a study does not provide any information on omissions of aged persons from the Medicare rolls nor on the net error in the census counts. A match study for measuring completeness of enrollment in Medicare, using a sample of persons in the census records, was not conducted although some consideration has been given to such a study. A measure of gross omissions of elderly persons from the census records does not indicate the net error rate in the census since the net error is affected also by age-sex-race misreporting, i.e.,

Net census error rate = gross omission rate + net sex-race misreporting rate + net age misreporting rate.

Table D. Adjustment of Medicare Enrollments for Exclusion of Various Groups and Corresponding Net Census Error Rates for the Population Aged 65 and Over, by Sex and Race: 1970

(Numbers in thousands. Figures relate to resident population. Net census error is based on census data which have been adjusted for race misclassification in the complete count and the overstatement of centenarians; base of percentages is the corresponding population estimate based on Medicare data)

Sex and race	Medicare enrollments before adjustment ¹	Preliminary figures				Final figures						Census
		Medicare enrollments ²	Preliminary adjustment ³	Preliminary population estimate	Preliminary net error rate	Low estimates ⁵			High estimates ⁵			
						Final adjustment ⁴	Adjusted population estimate	Net error rate	Final adjustment ⁴	Adjusted population estimate	Net error rate	
All classes	20,051	19,932	216	20,148	−0.9	181	20,328	−1.8	821	20,969	−4.8	19,972
White	17,916	18,332	178	18,509	−1.3	99	18,608	−1.8	674	19,184	−4.8	18,272
Male	7,485	7,598	110	7,708	−1.2	—	7,708	−1.2	238	7,947	−4.2	7,615
Female	10,430	10,733	68	10,801	−1.3	99	10,900	−2.2	436	11,237	−5.2	10,657
Negro and other races	1,564	1,600	38	1,638	+3.8	81	1,720	−1.2	147	1,785	−4.8	1,700
Male	690	701	24	725	+3.6	7	732	+2.7	34	760	−1.0	752
Female	874	899	14	913	+3.9	75	988	−4.0	113	1,025	−7.5	949
Race unknown	571	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
Male	179	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)
Female	392	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)	(X)

X Not applicable.

¹ The original tabulations for Jan. 1, 1970 and July 1, 1970 have been interpolated to April 1, 1970.

² Adjusted to include a *pro rata* share of Medicare enrollees whose race was not reported and to allow for the small inconsistency between census data and Medicare data in the assignment of age.

³ Adjustment is for alien residents in the United States less than 5 years and for Federal employees and annuitants who had not registered for Medicare.

⁴ Adjustment is for "other persons" who had not registered for Medicare.

⁵ Calculation of net error rates shown in the principal tables; high estimates are illustrative only.

^{2,5} For a full discussion of results, see U.S. Bureau of the Census, Census of Population and Housing: 1970, PHC(E)-7, Evaluation and Research Program, The Medicare Record Check: Coverage of Persons 65 Years of Age and Over in the 1970 Census, U.S. Government Printing Office, Washington, D.C., 1973.

We may compare the net error rates derived from aggregate Medicare data, given in this report, with the gross omission rates derived from the Census-Medicare Match Study, to obtain estimates of misreporting rates. Such residual estimates are also affected by sampling error in the gross omission rates, errors due to matching problems, omissions in Medicare enrollment not already allowed for in the net error rates, and duplications in the Medicare enrollment. This comparison suggests that the small net census overcount rate for Negro-and-other-races males 65 and over (3 percent) represents the difference between a large gross omission rate (12 percent) and a large rate of "net (sex, race, age) misreporting" into this group (14 percent). (See table E.) Age overstatement is believed to account for the bulk of the "net misreporting" into the group (12 percent) since net misreporting by sex and race was relatively small (2 percent) and the balance of other types of errors is presumed to be small. For Negro-and-other-races females the gross omission rate was also high (7 percent), but the "net misreporting" rate (3 percent) implied by this figure and the net error rate was principally a matter of race-sex misreporting into the group (5 percent). For white males and females the gross omission rates were much smaller than for Negro-and-other-races and there appeared to be only a small net tendency to report erroneously into the age group.

Table E. Comparison of Net Error Rates Based on Aggregate Medicare Data and Omission Rates Based on the Census-Medicare Match Study, for the Population 65 and Over, by Sex and Race: 1970

(Rates per 100 corrected population. A minus sign (–) denotes net undercount, omission, or net understatement due to sex-race or age misreporting, and a plus sign (+) denotes a net overcount or net overstatement due to sex-race or age misreporting)

Sex and race	Net census error rate ¹	Omission rate ²	Difference		
			Total ³	Part due to sex-race misreporting ²	Re-main-der ³
Total	–1.8	–4.0	+2.2	–	+2.2
White male	–1.2	–4.0	+2.8	–0.3	+3.1
White female . .	–2.2	–3.1	+0.9	–0.4	+1.3
Negro and other races male	+2.7	–11.7	+14.4	+2.4	+12.0
Negro and other races female . .	–4.0	–7.4	+3.4	+5.3	–1.9

¹Based on a comparison of census counts and aggregated Medicare data. Figures have been adjusted for underenrollment in Medicare.

²Based on the Census-Medicare Match Study. Figures have been adjusted for census imputations.

³Derived by subtraction. Age misreporting is presumably a major contributor to the "total difference" and the "remainder," which also includes sampling error, errors due to matching problems, and omissions in Medicare enrollment not already allowed for in the net error rate.

The estimates of net census error rates for the age groups 65 and over in 1970 and 55 and over in 1960 based on Medicare data are believed to decline in reliability with increasing age. The general reasons for failure to enroll for Medicare would be expected to apply with greater force as age increases, age reporting is probably

less accurate, and the expected sex ratios are subject to greater error. Furthermore, the adjustment for 10 years of population change between 1960 and 1970, required to carry the 1970 corrected population 65 years of age and over back to 1960, is considerable and, hence, the adequacy of the estimates 55 and over in 1960 depends heavily on the accuracy of the data on intercensal change, principally death statistics. As noted previously, the recorded death statistics probably suffer from errors of both coverage and age reporting, particularly the latter. Accordingly, the estimates of the elderly population in 1960 are subject to greater error than the corresponding figures for 1970.

EXPECTED "TRUE" SEX RATIOS

As we have seen, considerable reliance is placed on the use of expected "true" sex ratios in deriving the estimates of net census errors in 1960 and 1970 presented in this report. Expected sex ratios are employed because it is believed that any corrected figures should conform to reasonable demographic expectation regarding the balance of the sexes at each age and that the pattern and level of the "true" sex ratios by age, for the two broad racial categories, can be measured with only a small degree of error. The expected sex ratios for 1960 and 1970 are shown in table F.

Method of deriving expected sex ratios.—These expected sex ratios were based on the observed sex ratios of births by race from 1915 (when the Birth Registration Area was established) to 1968 and assumed or estimated sex ratios of births for prior and later years. Sex ratios of births had to be estimated for the period 1885 to 1915, that is, for the years when the population 55 to 85 years of age in 1970 was born. The average sex ratio recorded for 1915 to 1919 (whites) or 1915 to 1968 (Negro-and-other-races) was assigned for all those years.

The sex ratios of births were then brought forward to each successive census date by the use of a series of sex ratios of survival rates which were derived from the historical series of official life tables for the period from 1900 to 1970. For the most part, the official tables had to be interpolated to the appropriate 5-year periods. For the years prior to 1900 the relative level of male and female mortality was assumed to be the same as shown by the life tables for 1900-02. The resulting sex ratios of "native survivors" in 1960 were then adjusted for excess mortality due to World War II and for the sex balance of the net in-movement of citizens and aliens into the United States up to 1960. The numbers of deaths in World War I and the Korean Conflict were believed to be too few to have a significant impact on the sex ratios in 1960. The adjustment of the sex ratios of native survivors for net in-movement was based on 1960 Census data on the foreign-born population and on persons born in Puerto Rico.

Expected sex ratios for 1960 had previously been calculated in connection with the studies of the coverage of the 1960 Census. These sex ratios were reexamined in connection with the studies of the coverage of the 1970 Census, some modifications were made, and expected sex ratios were prepared for 1970 on the basis of the ratios for 1960. The sex ratios in 1960 were carried forward to 1970 implicitly in terms of the corrected population in 1960 and recorded intercensal changes. On the basis of the review for 1960, only the values for ages 65 and over were modified. The modification resulted from the use of additional age detail in the calculations and provided, as a by-product, expected sex ratios in 1960 for three component age groups of the population 65 and over. As a consequence of these calculations, the expected sex ratio for the white population 65 and over as a whole was substantially reduced, but there was little change in the expected sex ratio for the Negro-and-other-races population.

Table F. Comparison of "Enumerated" Sex Ratios and Expected "True" Sex Ratios, by Age and Race: 1970 and 1960

(Sex ratios represent males per 100 females)

Race and age	1970						1960			
	Census		Expected		Difference ¹		Census	Expected		Differ- ence ¹
	Unadjusted	Adjusted ²	Based on component sex ratios	Based on "true" population	Unadjusted	Adjusted ²		Based on component sex ratios	Based on "true" population	
White										
Under 5 years	104.6	104.6	105.0	105.0	-0.4	-0.4	104.0	104.8	104.8	-0.4
5 to 9 years	104.5	104.5	104.7	104.7	-0.2	-0.2	104.0	104.9	104.9	-0.9
10 to 14 years	104.5	104.5	104.6	104.6	-0.1	-0.1	103.8	104.8	104.9	-1.1
15 to 19 years	102.6	102.7	103.4	103.4	-0.8	-0.7	101.1	102.9	102.6	-1.5
20 to 24 years	94.5	94.6	95.9	96.0	-1.5	-1.4	96.3	98.5	98.2	-1.9
25 to 29 years	98.1	98.1	100.3	100.1	-2.0	-2.0	97.7	100.5	(NA)	-2.8
30 to 34 years	97.7	97.7	100.1	99.7	-2.0	-2.0	97.2	99.6	(NA)	-2.4
35 to 39 years	96.9	96.9	100.2	(NA)	-3.3	-3.3	95.7	98.4	(NA)	-2.7
40 to 44 years	96.0	96.0	99.0	(NA)	-3.0	-3.0	96.4	98.5	(NA)	-2.1
45 to 49 years	94.1	94.1	97.0	(NA)	-2.9	-2.9	97.4	98.3	(NA)	-0.9
50 to 54 years	93.5	93.5	95.5	(NA)	-2.0	-2.0	97.2	96.6	(NA)	+0.6
55 to 59 years	91.8	91.8	92.7	(NA)	-0.9	-0.9	95.7	94.5	(NA)	+1.2
60 to 64 years	87.7	87.8	87.4	(NA)	+0.3	+0.4	91.0	89.9	(NA)	+1.1
65 to 69 years	80.4	80.5	81.2	(NA)	-0.8	-0.7	87.9	85.9	(NA)	+2.3
70 to 74 years	73.3	73.4	73.0	(NA)	+0.3	+0.4	85.1	81.1	(NA)	+4.0
75 years and over	63.2	62.8	61.3	(NA)	+1.9	+1.5	74.3	71.7	(NA)	+2.6
65 years and over	71.6	71.5	70.8	(NA)	+0.8	+0.7	82.3	79.5	(NA)	+2.8
Negro and other races										
Under 5 years	100.8	100.7	101.4	101.4	-0.6	-0.7	99.9	101.4	101.5	-1.6
5 to 9 years	100.8	100.6	101.6	101.6	-0.8	-1.0	100.0	100.7	100.9	-0.9
10 to 14 years	100.4	100.3	101.1	101.2	-0.8	-0.9	100.1	100.1	101.1	-1.0
15 to 19 years	98.9	98.7	99.6	99.7	-0.8	-1.0	97.8	99.5	100.5	-2.7
20 to 24 years	87.8	87.4	92.3	92.4	-4.5	-5.0	89.1	97.5	97.6	-8.5
25 to 29 years	86.4	86.1	94.4	95.3	-8.9	-9.2	87.0	98.9	(NA)	-11.9
30 to 34 years	84.7	84.3	94.9	94.9	-10.2	-10.6	85.8	98.4	(NA)	-12.6
35 to 39 years	82.9	82.7	96.0	(NA)	-13.1	-13.3	89.4	98.0	(NA)	-8.6
40 to 44 years	83.3	83.1	95.8	(NA)	-12.5	-12.7	90.4	97.0	(NA)	-6.6
45 to 49 years	87.6	87.4	95.9	(NA)	-8.3	-8.5	93.8	97.2	(NA)	-3.4
50 to 54 years	87.8	87.6	93.7	(NA)	-5.9	-6.1	96.8	96.3	(NA)	+0.5
55 to 59 years	88.9	88.6	91.9	(NA)	-3.0	-3.3	98.4	94.2	(NA)	+4.2
60 to 64 years	87.8	87.4	89.5	(NA)	-1.7	-2.1	94.6	89.8	(NA)	+4.8
65 to 69 years	83.0	82.5	86.4	(NA)	-3.4	-3.9	90.9	83.9	(NA)	+7.0
70 to 74 years	81.6	81.2	76.0	(NA)	+5.6	+5.2	92.2	82.5	(NA)	+9.7
75 years and over	74.8	73.8	61.9	(NA)	+12.9	+11.9	87.2	76.3	(NA)	+10.9
65 years and over	79.8	79.2	74.1	(NA)	+5.7	+5.1	90.1	81.2	(NA)	+8.9
Negro ³										
Under 5 years	100.5	100.5	(NA)	101.1	-0.6	-0.6	99.6	(NA)	101.3	-1.7
5 to 9 years	100.5	100.5	(NA)	101.4	-0.9	-0.9	99.7	(NA)	100.7	-1.0
10 to 14 years	100.3	100.3	(NA)	101.0	-0.7	-0.7	99.7	(NA)	100.9	-1.2
15 to 19 years	98.4	98.4	(NA)	99.5	-1.1	-1.1	97.2	(NA)	100.1	-2.9
20 to 24 years	86.2	86.2	(NA)	92.9	-6.7	-6.7	88.0	(NA)	97.6	-9.6
25 to 29 years	85.3	85.3	(NA)	96.6	-11.3	-11.3	86.7	(NA)	(NA)	(NA)
30 to 34 years	83.0	83.0	(NA)	96.1	-13.1	-13.1	85.5	(NA)	(NA)	(NA)

NA Not available.

¹ Employs expected sex ratios "based on the estimated 'true' population" for those ages where available. A minus sign (-) denotes a deficit, and a plus sign (+) denotes an excess, in the census sex ratio.² Based on census figures which have been adjusted for race misclassification in the complete count and for an overstatement of centenarians.³ Expected sex ratios are not available for the older ages not shown.

Evaluation.—An important aspect of the procedure of deriving expected sex ratios is that all principal calculations are carried out in terms of sex ratios and, hence, that reporting errors affecting both males and females in a similar fashion tend to cancel out. The procedure for determining the sex ratios of births during each 5-year period 1885 to 1970 assumes that (1) the completeness of registration of male babies and female babies is the same; (2) the sex ratio of births in the entire United States in 1915 to 1932 is the same as in the Birth Registration Area in those years; and (3) the sex ratio at birth for whites and Negroes has not varied or has varied very little in the last century. The relative completeness of registration of boy babies and girl babies has already been discussed. To evaluate the effect of the change in area, the sex ratio at birth for the Birth Registration Area in 1915 (10 States and the District of Columbia) was computed for the two race groups in 1933 and compared with the recorded figures for the entire United States in that year (48 States and the District of Columbia). For whites the two figures were almost identical, 106.0 (original Birth Registration Area) and 105.9 (United States); for "Negro and other races" there was only a small difference (104.5 vs. 103.3).

The third assumption was based on the observation that the sex ratios of births for each race group recorded for the Birth Registration Area from 1915 to 1968 showed little variation. The mean values of the sex ratios in this period, and the standard deviation around these means, are as follows:

Period and race	Mean	Standard deviation
1915-1968		
White	105.8	0.2
Negro and other races	102.7	0.8
1915-1939		
White	105.8	0.2
Negro and other races	103.2	0.9
1940-1968		
White	105.7	0.3
Negro and other races	102.4	0.4

Efforts to secure direct information on the sex ratio at birth for years prior to 1915 (e.g., from data on births for the few States which compiled birth statistics in these years; from data on children ever born in the 1910 Census, etc.) did not prove fruitful.

A feature of the present method was to apply expected sex ratios which were estimated "directly" for 1960 (i.e., from sex ratios of births and sex ratios of survival ratios to 1960) to the corrected female population for that year and then to carry the corrected male and female populations forward on the basis of recorded data on population change during the 1960-70 decade. It would have been possible, however, to apply expected sex ratios computed "directly" for 1950 or even 1940 to the corrected female population for these years and then carry the corrected male and female populations forward on the basis of recorded data on population change during the subsequent decades. This alternative approach is possible because, beginning with the 1940's, there are rather accurate estimates of intercensal population change based on births, deaths, and net migration data. It is of interest, therefore, to consider how expected sex ratios in 1970, computed in one of these alternative ways, would differ from the ones actually used in this study.

A comparison of the corrected population in 1970 derived from expected sex ratios computed "directly" for 1960, and the corrected population derived from expected sex ratios computed

"directly" for 1950, was made. At ages under 35 the differences in the corrected population are all zero since the corrected population of each sex was calculated on the basis of actual birth and death statistics. For the white population, differences are 0.5 percent or less between ages 35 and 75 in 1970 and 1.3 percent for ages 65 and over as a whole. For the Negro-and-other-races population, differences are all 2 percent or less between the ages 35 and 75 and 3.1 percent for ages 65 and over as a whole.

Another variation in the use of expected sex ratios may be considered. In the present study, as was explained, expected sex ratios for 1960 are applied to the female population for 1960 corrected on the basis of estimates of net undercount rates for females derived from the Coale-Zelnik study for whites and the Coale-Rives study for Negroes. An alternative is to combine estimates of the corrected male and female population for 1960 from these studies and then apply masculinity proportions (i.e., proportions male) corresponding to our expected sex ratios for that year, to derive adjusted male and female populations. In fact, Coale and his associates employed this procedure in deriving their estimated net undercount rates. In this way they made use of their preliminary estimates of corrected population for both males and females and of expected sex ratios. The procedure adopted for the present study, which is "built" on top of the previous research by Coale and his associates, rests on the assumption that the corrected female population can be estimated with less error than the corrected male population; as noted earlier, this is believed to be the case.

The method also assumes that the sex ratios of survival rates used in computing expected sex ratios are not seriously affected by errors in the basic data used in constructing the official life tables. In order to measure illustratively the effect of net census undercounts on the level of sex ratios of survival rates, and hence on the level of expected sex ratios, several life tables were calculated on the basis of corrected populations, and the sex ratios of survival rates from birth to successive ages implied by each table were compared with similar ratios based on the corresponding life tables unadjusted for census errors. Specifically, two sets of abridged life tables were computed for whites and Negroes or Negroes-and-other-races for 1900-02, 1919-21, and 1959-61, one without correction of the basic data, the other using corrected population data. For the white population, differences between the sex ratios of the survival rates from birth to successive ages, which would indicate corresponding differences in the sex ratios of the native survivors, are quite small (less than 0.5 per 100 females) at the ages below 50 in the 1900-02 table and at all ages up to 75 in the 1959-61 table. Even for ages 65 and over and 75 and over in the 1959-61 table, differences in the sex ratios of the survival rates are small reductions of only 0.8 and 2.5 (per 100 females), respectively. As expected, differences are larger for Negroes but, even here, differences are less than 0.5 at all ages up to 25 in the 1900-02 table and at all ages up to 30 in the 1959-61 table, and less than 2.0 at all ages up to 74 in the 1959-61 table. Only at ages 75 and over is the difference large; there is a reduction of 7.7 (per 100 females) in the 1959-61 life table. Some other illustrative differences between the sex ratios of survival rates from birth to successive ages are given in table G. Note that the figures at the higher ages in the earlier life tables (e.g., over 15 in 1900-02, over 35 in 1919-21, and over 75 in 1959-61) hardly affect sex ratios in 1970.

COALE-ZELNIK METHOD: WHITE FEMALE POPULATION 35 TO 64 YEARS OF AGE

The Coale-Zelnik estimates of net census error rates for native white females 15 to 44 years of age in 1950 were employed to derive the corrected white female population in 1950, and these corrected figures were then extended to 1960 and 1970 on the basis of recorded data on population change. The estimating procedure employed by Coale and Zelnik to reconstruct the native white

Table G. Difference Between Sex Ratios of Survival Rates From Birth to Selected Ages, for Various Life Tables, Based on Uncorrected and Corrected Population Data, by Race

(Deaths have not been corrected in either set of death rates. A minus sign (-) denotes that the sex ratio of survival rates in the corrected life table is higher than the sex ratio of the uncorrected life table)

Age (years)	1959-1961		1919-1921		1900-1902	
	White	Negro and other races	White	Negro	White	Negro
1 to 4	—	—	—	-0.1	—	-0.1
10 to 14 . . .	—	—	-0.1	-0.1	-0.1	—
20 to 24 . . .	—	-0.2	-0.2	-0.6	-0.3	-0.5
30 to 34 . . .	-0.1	-0.6	-0.3	-1.8	-0.3	-1.1
40 to 44 . . .	-0.2	-1.2	-0.3	-1.9	—	-1.4
50 to 54 . . .	-0.3	-1.7	+0.3	-0.1	+0.8	+0.9
60 to 64 . . .	-0.2	-1.6	+1.6	+9.5	+2.4	+8.6
65 and over	+0.8	+1.9	+6.0	+32.7	+6.8	+23.8

— Represents zero.

population by age and sex from 1880 to 1950 involves numerous assumptions which could contribute to error in the resulting estimates of net census error rates. A principal assumption is that 1.4 percent of white females aged 15 to 29 were not counted in the 1950 Census and in each preceding census. This figure was derived from the estimated undercoverage rate of white females 15 to 54 years of age shown by the Post-Enumeration Survey of 1950. A different assumption regarding the level of the net undercount rate for the age group 15 to 29 would change the net undercount rates by a corresponding amount at every age above age 15 in 1950. The rates for these cohorts would then be correspondingly affected in 1960 and 1970. The assumption of a different trend in the net undercount rate for the age group 15 to 29 (for example, a decline in the undercount rate prior to 1950) would tend to modify sharply both the level and age pattern of the net undercount rates in 1950.

In addition to this general assumption, the Coale-Zelnik method employs a host of subsidiary assumptions relating to the procedure for determining trends in age heaping on single ages, the procedure for selecting the best estimate of births from the several estimates derived by reverse projection of census data adjusted for age heaping, the choice of life tables to measure mortality between birth and attainment of various ages, the adjustment of the estimates to reflect a reasonable sex ratio at birth, and the volume of net movement of native whites to or from the country.

We cannot readily ascertain the level of probable error in the net undercount rates for 1970 that are based on the Coale-Zelnik study. However, the net undercount rates for the white female population in the 35-to-64 year range are believed to be subject to less error than those for the other three sex-race groups in this age range and to greater error than the estimates at the younger and older ages for the white female population.

COALE-RIVES METHOD: NEGRO FEMALE POPULATION 35 TO 64 YEARS OF AGE

The Coale-Rives method essentially bypasses the serious problem of age heaping in the data for Negroes since the calculations are carried out in terms of 5-year age groups. Such residual heaping in 5-year groups as may exist is presumably taken care of by the estimation of the "true" age distribution in 1880 on the basis of stable population analysis. This constitutes a major assumption but one for which there is strong evidence. On the other hand, the

procedure for establishing the overall level of underenumeration in 1880, and hence in all subsequent years, i.e., adjusting mortality upward in the early years, is relatively arbitrary; yet it implicitly affects the level of net undercounts at many ages in 1960 and 1970.

The general method is dependent on numerous other assumptions including those relating to the choice of mortality rates for carrying the population forward from 1880, the procedure for estimating births on the basis of the proportion of females under age 20 in each census, the adjustment for the sex ratio of births, and the volume of net movement of native Negroes to and from the country. It is not readily possible to assign levels of probable error to the net undercount rates for 1970 that are based on the Coale-Rives study—those for Negro females 35 to 64 years of age—but they are believed to be subject to greater error than the estimates for Negro females at the younger or older ages and the corresponding estimates for white males and females.

Extension to Other Populations

Corresponding estimates of the coverage of the population of specific races other than white and Negro, such as American Indians, Chinese, or Japanese, are not available. At the present time the data and techniques of estimation do not permit making reliable estimates for these groups.

SPANISH-ORIGIN POPULATION

Much interest has been expressed in estimates of the coverage of the population of Spanish ancestry, but we have not found any technique of preparing reasonably reliable estimates of the coverage of this population. Counts of the population of Spanish ancestry, whether they represent persons of "Spanish origin," "Spanish language," "Spanish surname," or some composite of these, may be affected by errors of coverage (balance of persons of Spanish ancestry omitted from the census over persons of Spanish ancestry counted twice) and errors of classification (balance of persons erroneously classified as of Spanish ancestry over persons erroneously classified as of non-Spanish ancestry). The preparation of reliable estimates of coverage error depends on the availability of national statistics of births, deaths (or life tables), and net immigration over a period of many years, and comparable census data from a number of censuses. Such data are not available and cannot be compiled from present records for persons of Spanish ancestry. Estimates of coverage error based on necessarily rough estimates of births, deaths, and net migration for a population that can be defined and measured in different ways, such as the population of Spanish ancestry, would be subject to such great error as to be of doubtful value and probably misleading. Efforts to estimate coverage in some local areas can be attempted on the basis of data for these areas on births to persons born in Puerto Rico and to persons with Spanish surnames, data on deaths, and school enrollment data but, of course, the results of such research would have only limited application. It may be possible to derive at least rough indications of the relative coverage of the population of Spanish ancestry on the basis of general indexes of the quality of the census data for this group.

GEOGRAPHIC SUBDIVISIONS

Estimates of the coverage of the population of geographic subdivisions of the United States, similar in reliability and scope to those presented for the United States as a whole, cannot be prepared. There is doubt that adequate estimates can be prepared even for States. Although there may be only a small question regarding the reliability of the birth and death statistics needed to prepare the estimates of expected population for most of the age distribution, data on internal migration, independent of the census, are not

available. We have explored and continue to investigate use of census data on State of birth, which would reflect internal migration, to make estimates of coverage for States; but these data are subject to underenumeration, just like the counts of population, and in presumably different and unknown degree. The problems relating to the use of these data have not yet been resolved. Furthermore, such component estimates would cover only the population under 35 years of age in 1970 and other data and methods would be required for estimating the older population. Several alternative methods would have to be tested. The measurement problem for areas within States is even more difficult and would involve very different methods, and any estimates would be subject to even greater error.²⁶

Some Implications of the Findings

IMPLICATIONS FOR BASIC DEMOGRAPHIC CHARACTERISTICS

We turn next to a consideration of the effect of net census errors by age, sex, and race on various important analytic measures relating to the demographic characteristics of the population. For this purpose we compare the values of these measures when they are based on corrected population figures with their values when they are based on census figures.

Effect on Growth Rate and Age-Sex-Race Composition.—The resident population of the United States increased by 13 percent between 1960 and 1970, whether measured on the basis of official census counts or corrected census figures. The overall growth rate of the white population between 1960 and 1970 would be about the same on either basis, but the growth rate of the Negro population would be reduced to a small extent by substitution of corrected numbers, from 19.6 percent to 19.3 percent. As would be expected, the "actual" percentage of Negroes in the population is a little higher than the census figures show. The estimate was 11.7 percent instead of 11.1 percent in April 1970, and 11.1 percent instead of 10.5 percent in April 1960.

In view of the fact that census net undercounts vary by age, various analytic measures of the age distribution may be especially affected by the errors. The figures for the change in age groups over time based on the uncorrected census data are distorted as a result of the "cohort effect," which, with the passage of time, carries errors in one age group down to another. When the figures are adjusted for net census errors, the "cohort effect" is eliminated.

A comparison of percentage changes by age between 1960 and 1970 based on census counts, with changes based on corrected figures, is shown in table H. Rather pronounced modifications appear in the 1960-70 percentage changes of particular age groups for the Negro population. Some age groups appear to have grown or declined much less rapidly than indicated by the uncorrected figures and some appear to have grown much more rapidly. The percentage decrease for young children between 1960 and 1970, and the percentage increase for youth, were substantially reduced when the figures were corrected. Whereas the uncorrected figures indicate an 11 percent decrease for the Negro population under age 5, the corrected figures show a decrease of only 7 percent. The increase for ages 15 to 24 was sharply reduced from 57 percent to 46 percent, and the increase at ages 35 to 44 was raised from 3 percent to 7 percent. Notable reductions are shown for Negro females aged 45 to 54 and 55 to 64.

In spite of the fact that the census net undercounts for Negroes are quite variable from age to age, the essential pattern of changes by age for the Negro population is reflected by the census figures.

Table H. Percent Change in the Population Between 1960 and 1970, by Broad Age Groups, by Sex and Race

Sex and age (years)	White		Negro	
	Uncorrected	Corrected	Uncorrected	Corrected
Males, all ages	+10.9	+11.0	+17.9	+18.2
Under 5	-16.4	-16.1	-10.5	-6.7
5 to 14	+13.1	+12.3	+27.5	+28.3
15 to 24	+45.8	+42.5	+56.6	+44.1
25 to 34	+8.8	+9.6	+9.6	+9.6
35 to 44	-5.3	-3.9	-0.1	+7.3
45 to 54	+10.9	+11.1	+9.9	+11.7
55 to 64	+16.4	+18.4	+19.8	+20.6
65 and over	+10.2	+11.1	+22.3	+25.5
Females, all ages	+13.3	+13.1	+21.2	+20.3
Under 5	-16.9	-16.2	-11.3	-6.6
5 to 14	+12.5	+12.6	+26.7	+27.8
15 to 24	+45.9	+43.5	+56.5	+47.6
25 to 34	+8.2	+9.8	+12.0	+12.2
35 to 44	-5.7	-5.0	+6.6	+6.8
45 to 54	+15.1	+12.5	+16.6	+12.0
55 to 64	+21.0	+21.2	+31.0	+24.5
65 and over	+26.9	+25.3	+39.2	+41.2

Because net undercounts are smaller and less variable from age to age for whites than for Negroes, modifications in the original percentage changes for whites are much smaller; hence, the census figures for whites reflect the actual changes more faithfully.

Furthermore, the percentage distributions by age of the white and Negro populations based on the census counts in 1960 and 1970 give a rather close indication of the "true" distributions by age and of the "true" differences between the age distributions for whites and Negroes.

These relations are reflected in "indexes of dissimilarity" (calculated by taking one-half of the sum of the differences in the percentages at each age without regard to sign), which here measure the degree of dissimilarity between pairs of percentage distributions expressed in broad age groups:

Distributions compared	1970		1960
White uncorrected—white corrected	0.2		0.3
Negro uncorrected—Negro corrected	1.4		1.8
White uncorrected—Negro uncorrected . . .	9.3		8.9
White corrected—Negro corrected	8.6		8.7
White uncorrected, 1970—white uncorrected, 1960		5.4	
White corrected, 1970—white corrected, 1960		5.0	
Negro uncorrected, 1970—Negro uncorrected, 1960		5.4	
Negro corrected, 1970—Negro corrected, 1960		4.3	

The indexes of dissimilarity comparing the uncorrected and corrected age distributions of the white population (0.2) and the Negro population (1.4) in 1970 are either negligible or small. The

²⁶ National Academy of Sciences, *America's Uncounted People*, Report of the Advisory Committee on Problems of Census Enumeration, Division of Behavioural Sciences, National Research Council, edited by Carole W. Parsons, Washington, D.C., 1972, esp. Chapter 6.

dissimilarity between the white and Negro distributions is considerable, but the same general degree of dissimilarity is reflected in the uncorrected figures (9.3) and the corrected figures (8.6). Similarly, the indexes of dissimilarity comparing the 1960 and 1970 age distributions reflect little differences in the 1960-70 change resulting from the correction of the census data.

The effect of the corrections on the age distributions may be summarized also in the modifications of the median ages resulting from the corrections:

Race	Median age			
	1970		1960	
	Uncorrected	Corrected	Uncorrected	Corrected
White	28.9	28.9	30.3	30.2
Negro	22.4	22.8	23.4	23.9
Difference ...	6.5	6.1	6.9	6.3

The corrections do not essentially change the original indication that the Negro population is considerably younger than the white population and that the median ages of the white and Negro populations have fallen a little since 1960.

Substitution of corrected data for the original figures has only a slight or negligible effect on the "dependency ratio" (ratio of children under age 18 and persons aged 65 and over to persons 18 to 64 years per 100) of the white population both in 1970 and 1960. The effect on the dependency ratio of the Negro population was moderate (90.0 vs. 95.7 in 1960 and 92.0 vs 96.0 in 1970). Even with the corrections the pattern remains of a much higher dependency rate for Negroes than whites, especially in 1970:

Race	Dependency ratio			
	1970		1960	
	Uncorrected	Corrected	Uncorrected	Corrected
White	77.0	76.7	79.2	80.4
Negro	96.0	92.0	95.7	90.0
Difference ...	19.0	15.3	16.5	9.6

We have already noted that a characteristic feature of the enumeration, both of whites and Negroes, is the relatively greater omission of males than of females. This general finding is reflected in differences between the sex ratios of the population shown by the 1970 and 1960 Censuses and sex ratios of the corresponding corrected populations. Overall, the sex ratio of the resident population in 1970 should "actually" be 96.3 (males per 100 females) rather than 94.8, the figure shown by the census. The overall correction is small for whites but rather pronounced for Negroes; the corrected figures indicate that there are 4 more Negro males per 100 Negro females than the census figure show (table I).

For both whites and Negroes the "actual" sex ratios exceed the "reported" sex ratios at most ages. The deficits in the reported balance of the sexes are especially great (i.e., exceed 5 males per 100 females) for Negroes at ages 20 to 54 in 1970 and ages 20 to 44 in 1960; on the average, between 9 and 10 males were missed for every 100 females at these ages. For example, the census counts show 83 males for every 100 females at ages 35 to 44 in 1970, but the corrected figures imply 97 males per 100 females, or 14 more males for 100 females. Deficits of males amounted to 12 males for 100 females at ages 25 to 34 and to 7 at ages 45 to 54. At the oldest ages the actual proportions of males appear to be lower than implied by the census counts. For example, there should be only 71 Negro males per 100 females at ages 65 and over in 1970 rather

Table I. Sex Ratios of the White and Negro Populations, by Age: 1970 and 1960

(Sex ratios represent males per 100 females)

Race and age (years)	1970 ¹			1960		
	Uncorrected	Corrected	Difference ²	Uncorrected	Corrected	Difference ²
White, all ages	95.3	96.3	-1.0	97.4	98.2	-0.8
Under 5	104.6	105.0	-0.4	104.0	104.8	-0.8
5 to 9	104.5	104.7	-0.3	104.0	104.9	-0.9
10 to 14	104.5	104.6	-0.1	103.8	104.9	-1.1
15 to 19	102.7	103.4	-0.8	101.1	102.6	-1.5
20 to 24	94.6	96.0	-1.4	96.3	98.2	-1.9
25 to 34	97.9	99.9	-2.0	97.4	100.1	-2.7
35 to 44	96.4	99.6	-3.2	96.0	98.4	-2.4
45 to 54	93.8	96.3	-2.4	97.3	97.5	-0.1
55 to 64	89.9	90.2	-0.2	93.5	92.3	+1.2
65 and over . .	71.5	70.7	+0.7	82.3	80.3	+2.0
Negro, all ages	90.8	95.2	-4.4	93.4	96.9	-3.5
Under 5	100.5	101.1	-0.6	99.6	101.3	-1.6
5 to 9	100.5	101.4	-0.9	99.7	100.7	-1.0
10 to 14	100.3	101.0	-0.7	99.7	101.0	-1.2
15 to 19	98.4	99.5	-1.1	97.2	100.1	-2.9
20 to 24	86.2	92.9	-6.7	88.0	97.6	-9.6
25 to 34	84.2	96.4	-12.1	86.1	98.6	-12.6
35 to 44	82.8	96.5	-13.7	88.4	96.1	-7.8
45 to 54	86.3	93.3	-7.0	91.6	93.6	-2.0
55 to 64	85.1	87.2	-2.1	93.1	90.0	+3.1
65 and over . .	76.4	71.0	+5.4	86.9	79.9	+7.0

¹Based on census figures which have been adjusted for misclassification in the complete count and for an overstatement of centenarians.

²A minus sign (-) denotes a deficit, and a plus sign (+) denotes an excess in the uncorrected (census) sex ratio.

than 76. In 1960 the relative excess of males in the census data affected a wider band of older ages. As a result of the much larger corrections in the Negro data than in the white data, white-Negro differences in sex ratios are in fact much smaller at most ages in 1970 than indicated by the census data. Overall, this difference is actually only 1.1 (males per 100 females) rather than the 4.5 shown by the census figures.

Effect on Vital Rates.—The effect of census undercoverage of the population has been further examined in relation to vital rates of various kinds. In general, if the population were corrected, the crude rates would be reduced by the same percentages as the undercoverage rate of the population involved. For example, the crude birth rate, crude death rate, and crude rate of natural increase for Negroes-and-other-races in 1970 would be reduced by about 7 percent (table J). The refined or adjusted rates would be affected somewhat differently because of the use of a standard age distribution or a more limited age range. The age-adjusted death rate for Negroes-and-other-races would be reduced by 6 percent, the general fertility rate by 4 percent, and the total fertility rate (that is, the sum of age-specific birth rates) by 4 percent. The corresponding rates for the white population would also be reduced, but by a smaller percentage. The corrected figures, like the uncorrected ones, indicate a considerable excess of Negro fertility

over white fertility and of Negro mortality over white mortality (age-adjusted), and the drop in both white and Negro fertility and

mortality between 1960 and 1970 is of the same order of magnitude in the corrected figures as in the uncorrected ones.

Table J. Vital Rates by Race: 1970 and 1960

("Corrected" refers only to the use of corrected population. Births have been adjusted for underregistration in all cases. Figures relate to the total resident population. Rates per 1,000 population. Base of percent is rate for white population or rate for 1960)

Rate and race	1970		1960		Percent change, 1960 to 1970	
	Uncorrected	Corrected	Uncorrected	Corrected	Uncorrected	Corrected
Crude birth rate						
All classes	18.5	18.0	24.0	23.3	-23.0	-22.9
White	17.4	17.1	22.8	22.4	-23.8	-23.7
Negro and other races	26.0	24.3	33.0	30.3	-21.0	-19.9
Percent difference	+49.9	+42.2	+44.5	+35.4	(X)	(X)
Crude death rate						
All classes	9.5	9.2	9.5	9.3	-0.6	-0.4
White	9.5	9.3	9.5	9.3	-0.1	-
Negro and other races	9.6	8.9	10.1	9.3	-4.7	-3.3
Percent difference	+1.5	-3.7	+6.3	-0.3	(X)	(X)
Crude rate of natural increase						
All classes	9.0	8.8	14.4	14.0	-37.9	-37.7
White	7.9	7.8	13.3	13.1	-40.7	-40.6
Negro and other races	16.4	15.3	22.9	21.0	-28.1	-27.2
Percent difference	+107.8	+97.2	+71.6	+60.8	(X)	(X)
General fertility rate						
All classes	88.3	86.9	119.1	117.0	-25.9	-25.7
White	83.9	82.9	113.9	112.7	-26.3	-26.4
Negro and other races	117.2	112.7	157.9	146.6	-25.8	-23.1
Percent difference	+39.6	+35.9	+38.6	+30.1	(X)	(X)
Total fertility rate						
All classes	2,501	2,454	3,689	3,598	-32.2	-31.8
White	2,389	2,352	3,555	3,498	-32.8	-32.8
Negro and other races	3,210	3,088	4,654	4,274	-31.0	-27.7
Percent difference	+34.3	+31.3	+30.9	+22.2	(X)	(X)
Age-adjusted death rate¹						
All classes	9.5	9.2	10.2	9.7	-6.8	-4.9
White	9.1	8.9	9.8	9.6	-7.0	-7.6
Negro and other races	12.2	11.5	13.0	12.5	-5.9	-8.2
Percent difference	+34.0	+29.6	+32.3	+30.5	(X)	(X)

X Not applicable.

¹ Population of all classes in 1970 employed as standard population.

In general, values for expectation of life at birth and at age 55 from abridged life tables for 1900-02, 1919-21, and 1959-61, by sex and race, are not greatly modified when corrected populations are used (table K). All expectancy values at birth are raised, especially those for the Negro male and female populations. The smallest (upward) modifications occur with the 1959-61 table and the largest with the 1919-21 table. Average years of life added at birth between 1900 and 1960 changed little as a result of the population adjustment.

Table K. Expectation of Life at Birth and at Age 55 in Various Abridged Life Tables, by Sex and Race

Sex, race, and period	At birth		At age 55	
	Popu- lation as recorded	Popu- lation corrected	Popu- lation as recorded	Popu- lation corrected
White, male				
1959-61	67.8	67.9	19.7	19.7
1919-21 ¹	56.4	57.2	18.6	19.0
1900-02 ²	48.3	49.2	17.4	17.9
Increase, 1900-02 to 1959-61	19.5	18.8	2.3	1.9
White, female				
1959-61	74.8	75.3	24.5	24.9
1919-21 ¹	58.6	59.9	19.4	20.6
1900-02 ²	51.3	52.9	18.7	20.1
Increase, 1900-02 to 1959-61	23.5	22.4	5.8	4.9
Negro and other races, male				
1959-61	62.0	62.8	18.8	18.6
1919-21 ³	47.2	49.5	17.5	17.2
1900-02 ⁴	42.3	44.2	14.7	13.2
Increase, 1900-02 to 1959-61	19.7	18.6	4.1	5.4
Negro and other races, female				
1959-61	67.6	68.6	22.3	23.0
1919-21 ³	47.0	51.0	17.1	20.5
1900-02 ⁴	43.6	46.5	15.9	16.6
Increase, 1900-02 to 1959-61	24.1	22.1	6.4	6.4

¹Registration States of 1920. Death rates adjusted by use of Coale-Zelnik estimates of census net error rates.

²Original Death Registration States. Death rates adjusted by use of Coale-Zelnik estimates of census net error rates.

³Registration States of 1920. Tables cover Negro population only. Death rates adjusted by use of Coale-Rives estimates of census net error rates.

⁴Original Death Registration States. Tables cover Negro population only. Death rates adjusted by use of Coale-Rives estimates of census net error rates.

OTHER IMPLICATIONS

Although the errors in the census counts do not appear to distort seriously our impression of the basic demographic situation in the United States as a whole, the precise effect on national statistics relating to the social and economic characteristics of the populations is not clear because, of course, we do not know about the social and economic characteristics of those who were missed. The racial composition of the omitted persons considered separately does suggest a lower overall educational and income level for persons omitted than for the persons enumerated. We should like to know, in particular, however, whether, and to what extent, the distributions by marital and family status, educational level, employment status, income level, etc., of the persons who were not enumerated differ from the corresponding distributions of persons who were counted, for a particular age, sex, and race category. If the persons omitted are distributed by marital and family status, educational level, employment status, income level, etc., in the same proportions as the persons counted in these categories, then the numbers counted as having certain social or economic characteristics may be low but the census proportions with these characteristics are not affected. Within any age, sex, and race category, however, the social and economic characteristics of the omitted persons may be more or less "favorable" than for the counted persons. If the persons omitted in these categories are more likely than the persons counted to be of low educational level, unemployed, and poor, not only are the census counts for these groups low, but the corresponding proportions are also. On the other hand, the omitted persons may possibly include a disproportionate number of family heads or other family members who are employed and receive substantial income. If they are family members, their inclusion in the census could possibly change the status of the families with which they are associated, with respect to family type (e.g., from female-headed families to husband-wife families) or family income (from a lower to a higher income class). Available studies suggest that if the omitted persons had been enumerated, the overall distributions and rates for various social and economic characteristics would not be appreciably different from the published ones.²⁷

Although the errors in the census counts have widespread implications for the statistical programs of government and industry, the effect on the development and implementation of the plans of government and industry is not clear. The impact of any underenumeration on the apportionment of representatives or funds among States or local areas usually depends principally on the variation in the rate of underenumeration from area to area. This generalization applies particularly if the apportionment is based on population alone. In the case of some funding programs, other factors affect the amount of money disbursed; for example, per capita income and "tax effort," as well as population, are taken into account in the case of Federal-State Revenue-Sharing. Under an apportionment formula, if the apportionment is based entirely or primarily on population and if the rate of underenumeration is the same from area to area, then the results of such apportionment would be essentially unaffected by any undercoverage.

²⁷Denis F. Johnson and James R. Wetzel, "Effect of the Census Undercount on Labor Force Estimates," *Monthly Labor Review*, March 1969, pp. 3-13 (also issued as U.S. Bureau of Labor Statistics, Special Labor Force Report No. 105); Deborah P. Klein, "Determining the Labor Force Status of Men Missed in the Census," *Monthly Labor Review*, March 1970, pp. 26-32 (also issued as U.S. Bureau of Labor Statistics, Special Labor Force Report 117).

U.S. Social Security Administration, Office of Research and Statistics, *Studies from Interagency Data Linkages*, "Coverage Differences, Noninterview Nonresponse, and the 1960 Census Undercount: 1963 Pilot Link Study," by Fritz Scheuren, Beth Kilss, and H. Lock Oh, December 1973.

It is improbable that uniformity in net underenumeration rates exists, however. It seems likely that, since undercoverage rates of Negroes are higher than those of whites, States, cities, and other political units having heavy concentrations of Negroes have higher undercoverage rates than areas with very small concentrations of Negroes. Undercoverage is probably more serious in large cities, therefore, although we do not have solid evidence to prove or disprove this hypothesis.

Since, to some extent, all areas share in the underenumeration and a fixed total is being distributed, the loss or gain in funds or political representation tend to be dampened when an apportionment formula is applied to population figures corrected for underenumeration. Adjustment for census underenumeration for an array of areas would have the effect of reducing the allocation of funds or representation to some areas and of increasing it for others. Some experimental computations along this line indicate that the results of applying apportionment formulas are rather insensitive to small or moderate increases in population size.

Table 1. Estimates of the Amount and Percent of Net Underenumeration of the Total Population in 1970 for Various Amounts and Percents of Net Underenumeration in 1960 and Various Amounts of Population Increase Between 1960 and 1970

(Numbers in thousands. Base of percent is corresponding estimate of corrected population. The census count of total resident population is 203,235,000 in 1970 and 179,323,000 in 1960)

1960	1970 corrected population and net underenumeration according to population increase (or change in census coverage) between 1960 and 1970			
	Postcensal increase of 23,650,000	Postcensal increase of 23,912,000	Postcensal increase of 24,150,000	Postcensal increase of 24,400,000
	Coverage increase of 262,000 ¹	No change in coverage ²	Coverage decrease of 238,000 ³	Coverage decrease of 488,000 ⁴
<u>1960 corrected population</u>				
184,623 ⁵	208,273	208,535	208,773	209,023
184,564 ⁶	208,214	208,476	208,714	208,964
184,386 ⁷	208,036	208,298	208,536	208,786
183,704 ⁸	207,354	207,616	207,854	208,104
182,651 ⁹	206,301	206,563	206,801	207,051
<u>Net underenumeration</u>				
Amount				
5,300 ⁵	5,038	5,300	¹⁰ 5,538	5,788
5,240 ⁶	4,978	5,240	¹¹ 5,478	5,728
5,063 ⁷	4,801	5,063	¹² 5,301	5,551
4,381 ⁸	4,118	4,381	4,618	4,868
3,328 ⁹	3,066	3,328	3,566	3,816
Percent				
2.9 ⁵	2.4	2.5	¹⁰ 2.7	2.8
2.8 ⁶	2.4	2.5	¹¹ 2.6	2.7
2.7 ⁷	2.3	2.4	¹² 2.5	2.7
2.4 ⁸	2.0	2.1	2.2	2.3
1.8 ⁹	1.5	1.6	1.7	1.8

¹Assumes a postcensal estimate of 203,000,000 for the resident population on April 1, 1970. Postcensal increase of 23,650,000 implies 3,387,000 net civilian immigration.

²Assumes a postcensal estimate of 203,235,000 for the resident population on April 1, 1970. Postcensal increase of 23,912,000 implies 3,622,000 net civilian immigration.

³Assumes a postcensal estimate of 203,500,000 for the resident population on April 1, 1970. Postcensal increase of 24,150,000 implies 3,887,000 net civilian immigration.

⁴Assumes a postcensal estimate of 203,750,000 for the resident population on April 1, 1970. Postcensal increase of 24,400,000 implies 4,137,000 net civilian immigration.

⁵Estimate based on demographic analysis. Corresponds to estimates for ages under 25 based directly on births and "Conference" estimates for ages 25 and over.

⁶Estimate based on demographic analysis and Medicare data. Corresponds to estimates for ages under 25 based directly on births, "Conference" estimates for ages 25 to 54, and "Medicare" estimates for ages 55 and over.

⁷Estimate based on demographic analysis and Medicare data. Corresponds to estimates for ages under 25 based directly on births, "Conference" estimates for the white population aged 25 to 54 years, Coale-Rives estimates for Negro females aged 25 to 54 years, estimates for Negro-and-other-races males aged 25 to 54 years based on expected sex ratios, and "Medicare" estimates for ages 55 and over.

⁸Estimates based on composite of results from demographic analysis and reinterview surveys. See Siegel and Zelnik, op. cit., table 6 (set 1, revised).

⁹Estimate from reinterview surveys. See Marks and Waksberg, op. cit., table 2.

¹⁰Corresponds to set A estimates.

¹¹Corresponds to set B estimates.

¹²Corresponds to set D estimates.

Table 2. Alternative Estimates of the Amount and Percent of Net Underenumeration of the Population, by Race and Sex: 1970 and 1960

(Numbers in thousands. Figures relate to the resident population. Base of percentages is the corrected population. See text for explanation of Series A, B, C, and D. "Adjusted" estimates for 1970 are based on census figures which have been adjusted for race misclassification in the complete count, affecting some 327,000 persons, mostly of Spanish ancestry)

Race, sex, and year	Corrected population	Net undercount				Corrected population	Net undercount			
		Unadjusted		Adjusted			Unadjusted		Adjusted	
		Amount	Percent	Amount	Percent		Amount	Percent	Amount	Percent
		Set A				Set B				
1970										
All classes.....	208,773	5,561	2.7	5,538	2.7	208,714	5,502	2.6	5,478	2.6
Male.....	102,380	3,467	3.4	3,453	3.4	102,366	3,454	3.4	3,440	3.4
Female.....	106,394	2,094	2.0	2,085	2.0	106,347	2,047	1.9	2,038	1.9
White, total.....	181,457	3,708	2.0	3,359	1.9	181,544	3,795	2.1	3,446	1.9
Male.....	89,039	2,318	2.6	2,133	2.4	89,081	2,360	2.6	2,175	2.4
Female.....	92,418	1,390	1.5	1,226	1.3	92,463	1,435	1.6	1,271	1.4
Negro and other races, total.....	27,316	1,853	6.8	2,179	8.0	27,170	1,707	6.3	2,032	7.5
Male.....	13,340	1,149	8.6	1,320	9.9	13,285	1,094	8.2	1,265	9.5
Female.....	13,976	704	5.0	859	6.1	13,885	613	4.4	767	5.5
Negro, total.....	24,744	2,163	8.7	2,163	8.7	24,612	2,032	8.3	2,032	8.3
Male.....	12,057	1,309	10.9	1,308	10.9	12,007	1,259	10.5	1,259	10.5
Female.....	12,686	854	6.7	855	6.7	12,605	773	6.1	773	6.1
1960										
All classes.....	184,623	5,300	2.9	(X)	(X)	184,564	5,240	2.8	(X)	(X)
Male.....	91,421	3,090	3.4	(X)	(X)	91,408	3,077	3.4	(X)	(X)
Female.....	93,202	2,210	2.4	(X)	(X)	93,156	2,164	2.3	(X)	(X)
White, total.....	161,994	3,162	2.0	(X)	(X)	162,080	3,249	2.0	(X)	(X)
Male.....	80,244	1,877	2.3	(X)	(X)	80,286	1,918	2.4	(X)	(X)
Female.....	81,750	1,285	1.6	(X)	(X)	81,795	1,330	1.6	(X)	(X)
Negro and other races, total.....	22,630	2,138	9.4	(X)	(X)	22,483	1,992	8.9	(X)	(X)
Male.....	11,177	1,213	10.9	(X)	(X)	11,122	1,158	10.4	(X)	(X)
Female.....	11,452	925	8.1	(X)	(X)	11,361	834	7.3	(X)	(X)
Negro, total.....	20,792	1,920	9.2	(X)	(X)	20,662	1,789	8.7	(X)	(X)
Male.....	10,219	1,105	10.8	(X)	(X)	10,170	1,056	10.4	(X)	(X)
Female.....	10,573	815	7.7	(X)	(X)	10,492	733	7.0	(X)	(X)
		Set C ¹				Set D				
1970										
All classes.....	(NA)	(NA)	(NA)	(NA)	(NA)	208,536	5,324	2.6	5,301	2.5
Male.....	(NA)	(NA)	(NA)	(NA)	(NA)	102,280	3,367	3.3	3,353	3.3
Female.....	(NA)	(NA)	(NA)	(NA)	(NA)	106,257	1,957	1.8	1,947	1.8
White, total.....	181,457	3,708	2.0	3,359	1.9	181,544	3,795	2.1	3,446	1.9
Male.....	89,039	2,318	2.6	2,133	2.4	89,081	2,360	2.6	2,175	2.4
Female.....	92,418	1,390	1.5	1,226	1.3	92,463	1,435	1.6	1,271	1.4
Negro and other races, total.....	(NA)	(NA)	(NA)	(NA)	(NA)	26,992	1,529	5.7	1,855	6.9
Male.....	(NA)	(NA)	(NA)	(NA)	(NA)	13,199	1,007	7.6	1,179	8.9
Female.....	(NA)	(NA)	(NA)	(NA)	(NA)	13,794	522	3.8	676	4.9
Negro, total.....	24,367	1,787	7.3	1,787	7.3	24,453	1,873	7.7	1,873	7.7
Male.....	11,934	1,186	9.9	1,186	9.9	11,929	1,180	9.9	1,180	9.9
Female.....	12,433	601	4.8	601	4.8	12,525	693	5.5	693	5.5
1960										
All classes.....	(NA)	(NA)	(NA)	(X)	(X)	184,386	5,063	2.7	(X)	(X)
Male.....	(NA)	(NA)	(NA)	(X)	(X)	91,321	2,990	3.3	(X)	(X)
Female.....	(NA)	(NA)	(NA)	(X)	(X)	93,065	2,073	2.2	(X)	(X)
White, total.....	161,994	3,162	2.0	(X)	(X)	162,080	3,249	2.0	(X)	(X)
Male.....	80,244	1,877	2.3	(X)	(X)	80,286	1,918	2.4	(X)	(X)
Female.....	81,750	1,285	1.6	(X)	(X)	81,795	1,330	1.6	(X)	(X)
Negro and other races, total.....	(NA)	(NA)	(NA)	(X)	(X)	22,306	1,814	8.1	(X)	(X)
Male.....	(NA)	(NA)	(NA)	(X)	(X)	11,036	1,071	9.7	(X)	(X)
Female.....	(NA)	(NA)	(NA)	(X)	(X)	11,270	743	6.6	(X)	(X)
Negro, total.....	20,632	1,760	8.5	(X)	(X)	20,503	1,630	8.0	(X)	(X)
Male.....	10,164	1,050	10.3	(X)	(X)	10,091	977	9.7	(X)	(X)
Female.....	10,468	710	6.8	(X)	(X)	10,412	653	6.3	(X)	(X)

NA Not available.

X Not applicable.

¹Figures for Negroes are preliminary.

Table 3. Preferred Estimates of the Amount and Percent of Net Underenumeration of the Population, by Sex and Race: 1950 to 1970

(Numbers in thousands. Composite of analytic estimates, corresponding to set D estimates (adjusted). Figures relate to the resident population. Base of percents is corresponding estimate of corrected population)

Sex and race	1970 ¹		1960		1950 ²	
	Amount	Percent	Amount	Percent	Amount	Percent
All classes.....	5,301	2.5	5,063	2.7	5,132	3.3
Male.....	3,353	3.3	2,990	3.3	2,934	3.8
Female.....	1,947	1.8	2,073	2.2	2,198	2.8
White, total.....	3,446	1.9	3,249	2.0	3,400	2.5
Male.....	2,175	2.4	1,918	2.4	1,933	2.8
Female.....	1,271	1.4	1,330	1.6	1,466	2.1
Negro and other races, total.....	1,855	6.9	1,814	8.1	1,733	9.7
Male.....	1,179	8.9	1,071	9.7	1,001	11.2
Female.....	676	4.9	743	6.6	732	8.2
Negro, total.....	1,873	7.7	1,630	8.0	(NA)	(NA)
Male.....	1,180	9.9	977	9.7	(NA)	(NA)
Female.....	693	5.5	653	6.3	(NA)	(NA)

NA Not available.

¹Based on census figures which have been adjusted for race misclassification in the complete count.

²Figures relate to 50 States and the District of Columbia.

Table 4. Alternative Estimates of the Amount and Percent of Net Undercount of the White Population, by Age and Sex: 1970 and 1960

(Numbers in thousands. Figures relate to the resident population. Base of percentages is the corrected population. See text for explanation of Series A, B, C, and D. "Adjusted" estimates are based on census figures which have been adjusted for race misclassification in the complete count, affecting some 327,000 persons, mostly of Spanish ancestry, and for a gross overstatement of centenarians, amounting to about 103,000 persons. A minus indicates a net overcount. Total amounts of net underenumeration obtained by summing estimates by age differ slightly from required totals shown in tables 2 and 3)

Age and sex	1970								1960			
	Sets A and C				Sets B and D				Sets A and C		Sets B and D	
	Unadjusted		Adjusted		Unadjusted		Adjusted		Amount	Percent	Amount	Percent
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent				
Males, all ages.....	2,330	2.6	2,144	2.4	2,372	¹ 2.7	2,186	¹ 2.5	1,877	2.3	1,918	2.4
Under 5 years.....	196	2.6	174	2.3	196	2.6	174	2.3	170	1.9	170	1.9
5 to 9 years.....	236	2.7	213	2.4	236	2.7	213	2.4	199	2.4	199	2.4
10 to 14 years.....	121	1.3	98	1.1	121	1.3	98	1.1	194	2.5	194	2.5
15 to 19 years.....	131	1.6	109	1.3	131	1.6	109	1.3	233	3.8	233	3.8
20 to 24 years.....	203	2.8	177	2.5	203	2.8	177	2.5	209	4.3	209	4.3
25 to 29 years.....	308	5.0	288	4.7	308	5.0	288	4.7	208	4.2	208	4.2
30 to 34 years.....	220	4.3	203	4.0	220	4.3	203	4.0	167	3.1	167	3.1
35 to 39 years.....	219	4.4	206	4.1	219	4.4	206	4.1	142	2.5	142	2.5
40 to 44 years.....	185	3.4	172	3.2	185	3.4	172	3.2	97	1.9	97	1.9
45 to 49 years.....	201	3.7	189	3.5	201	3.7	189	3.5	77	1.6	77	1.6
50 to 54 years.....	96	2.0	87	1.8	96	2.0	87	1.8	159	3.6	159	3.6
55 to 59 years.....	100	2.3	93	2.1	100	2.3	93	2.1	15	0.4	-34	-0.9
60 to 64 years.....	93	2.5	86	2.3	93	2.5	86	2.3	97	3.0	66	2.1
65 to 69 years.....	50	1.7	44	1.5	-	-	-5	-0.2	17	0.6	49	1.8
70 to 74 years.....	32	1.5	28	1.3	1	0.1	-2	-0.1	-68	-3.5	-14	-0.7
75 years and over.....	-61	-2.3	-21	-0.8	61	2.2	101	3.6	-38	-1.8	-3	-0.1
65 years and over.....	21	0.3	52	0.7	63	0.8	93	1.2	-90	-1.3	32	0.5
Females, all ages.....	1,401	1.5	1,238	1.3	1,447	1.6	1,283	1.4	1,285	1.6	1,330	1.6
Under 5 years.....	161	2.2	142	2.0	161	2.2	142	2.0	95	1.1	95	1.1
5 to 9 years.....	203	2.4	182	2.2	203	2.4	182	2.2	120	1.5	120	1.5
10 to 14 years.....	102	1.2	82	0.9	102	1.2	82	0.9	108	1.5	108	1.5
15 to 19 years.....	64	0.8	45	0.5	64	0.8	45	0.5	144	2.4	144	2.4
20 to 24 years.....	98	1.3	79	1.1	98	1.3	79	1.1	121	2.4	121	2.4
25 to 29 years.....	191	3.1	173	2.8	191	3.1	173	2.8	68	1.4	68	1.4
30 to 34 years.....	117	2.3	101	2.0	117	2.3	101	2.0	32	0.6	32	0.6
35 to 39 years.....	56	1.1	41	0.8	56	1.1	41	0.8	-11	-0.2	-11	-0.2
40 to 44 years.....	20	0.4	7	0.1	20	0.4	7	0.1	-11	-0.2	-11	-0.2
45 to 49 years.....	41	0.7	30	0.5	41	0.7	30	0.5	35	0.7	35	0.7
50 to 54 years.....	-8	-0.1	-16	-0.3	-8	-0.1	-16	-0.3	194	4.2	194	4.2
55 to 59 years.....	66	1.4	60	1.3	66	1.4	60	1.3	62	1.6	13	0.3
60 to 64 years.....	121	2.8	115	2.7	121	2.8	115	2.7	151	4.2	116	3.3
65 to 69 years.....	16	0.4	11	0.3	-34	-1.0	-38	-1.1	91	2.9	117	3.7
70 to 74 years.....	50	1.7	46	1.6	16	0.5	12	0.4	34	1.4	62	2.6
75 years and over.....	104	2.4	141	3.2	233	5.1	270	5.9	53	1.7	126	4.1
65 years and over.....	170	1.6	198	1.8	215	2.0	243	2.2	177	2.1	306	3.5

- Represents zero or rounds to zero.

¹Required figures, as given in tables 2 and 3, are 2.6 percent (unadjusted) and 2.4 percent (adjusted).

Table 5. Alternative Estimates of the Amount and Percent of Net Undercount of the Negro Population and the Negro-and-Other-Races Population, by Age and Sex: 1970 and 1960

(Numbers in thousands. Figures relate to the resident population. Base of percentages is the corrected population. See text for explanation of Series A, 8, C, and O. "Adjusted" estimates for 1970 are based on census figures which have been adjusted for race misclassification in the complete count, affecting some 327,000 persons, mostly of Spanish ancestry, and for a gross overstatement of centenarians, amounting to about 103,000 persons. A minus indicates a net overcount. Total amounts of net underenumeration obtained by summing estimates by age differ slightly from required totals shown in tables 2 and 3)

Year, age, and sex	Set A				Set B				Set C		Set D							
	Negro				Negro				Negro ¹		Negro and other races				Negro			
	Unadjusted		Adjusted		Unadjusted		Adjusted		Amount	Percent	Unadjusted		Adjusted		Unadjusted		Adjusted	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent			Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1970																		
Males, all ages.....	1,310	10.9	1,310	10.9	1,261	10.5	1,260	10.5	1,186	9.9	1,009	7.6	1,180	8.9	1,182	9.9	1,181	9.9
Under 5 years.....	142	10.4	141	10.4	142	10.4	141	10.4	137	10.1	138	9.1	156	10.3	142	10.4	141	10.4
5 to 9 years.....	116	7.8	115	7.7	116	7.8	115	7.7	104	7.0	106	6.4	122	7.5	116	7.8	115	7.7
10 to 14 years.....	53	3.6	52	3.5	53	3.6	52	3.5	41	2.8	41	2.6	56	3.5	53	3.6	52	3.5
15 to 19 years.....	55	4.4	54	4.3	55	4.4	54	4.3	42	3.4	27	2.0	42	3.1	55	4.4	54	4.3
20 to 24 years.....	116	12.2	116	12.1	116	12.2	116	12.1	107	11.3	73	7.0	91	8.7	116	12.2	116	12.1
25 to 29 years.....	155	19.1	154	19.0	155	19.1	154	19.0	141	17.7	126	14.0	140	15.6	153	19.1	154	19.0
30 to 34 years.....	124	17.9	124	17.9	124	17.9	124	17.9	116	16.9	97	12.7	111	14.4	124	17.9	124	17.9
35 to 39 years.....	125	18.7	124	18.7	125	18.7	124	18.7	114	17.4	123	16.4	134	17.8	123	18.6	123	18.5
40 to 44 years.....	115	17.5	115	17.4	115	17.5	115	17.4	110	16.8	110	15.0	119	16.3	110	16.8	110	16.8
45 to 49 years.....	103	16.5	103	16.5	103	16.5	103	16.5	95	15.4	82	12.1	90	13.3	85	14.0	84	13.9
50 to 54 years.....	66	12.7	66	12.6	66	12.7	66	12.6	72	13.5	51	9.0	57	10.1	55	10.7	54	10.6
55 to 59 years.....	58	12.6	58	12.5	58	12.6	58	12.5	71	14.9	49	9.7	53	10.6	50	10.9	49	10.9
60 to 64 years.....	59	15.0	59	14.9	59	15.0	59	14.9	50	12.9	25	6.1	29	7.3	25	7.0	25	7.0
65 to 69 years.....	-15	-5.8	-15	-5.9	-25	-10.0	-25	-10.1	11	3.7	-23	-8.1	-20	-6.7	-25	-10.0	-25	-10.1
70 to 74 years.....	-21	-12.9	-21	-13.0	-4	-2.1	-4	-2.2	-22	-5.9	-4	-2.0	-1	-0.7	-4	-2.1	-4	-2.2
75 years and over.....	59	21.6	66	24.2	2	0.9	9	4.3		-11	-4.6	1	0.3	2	0.9	9	4.3	
65 years and over.....	23	3.3	30	4.3	-27	-4.2	-20	-3.1	-12	-1.7	-38	-5.3	-20	-2.7	-27	-4.2	-20	-3.1
Females, all ages.....	856	6.8	856	6.8	774	6.1	775	6.1	601	4.8	524	3.8	678	4.9	695	5.5	695	5.5
Under 5 years.....	133	9.9	132	9.8	133	9.9	132	9.8	121	9.1	129	8.6	144	9.7	133	9.9	132	9.8
5 to 9 years.....	102	6.9	101	6.9	102	6.9	101	6.9	94	6.4	92	5.7	106	6.6	102	6.9	101	6.9
10 to 14 years.....	42	2.9	41	2.8	42	2.9	41	2.8	30	2.1	29	1.8	42	2.7	42	2.9	41	2.8
15 to 19 years.....	41	3.3	40	3.2	41	3.3	40	3.2	30	2.4	17	1.2	29	2.1	41	3.3	40	3.2
20 to 24 years.....	55	5.3	54	5.2	55	5.3	54	5.2	46	4.5	23	2.0	39	3.4	55	5.3	54	5.2
25 to 29 years.....	70	8.4	70	8.3	70	8.4	70	8.3	53	6.4	47	5.0	62	6.6	70	8.4	70	8.3
30 to 34 years.....	36	5.0	35	4.9	36	5.0	35	4.9	23	3.3	17	2.1	30	3.7	36	5.0	35	4.9
35 to 39 years.....	32	4.6	31	4.6	32	4.6	31	4.6	21	3.1	25	3.1	36	4.6	30	4.4	30	4.3
40 to 44 years.....	30	4.4	30	4.3	30	4.4	30	4.3	22	3.3	17	2.2	27	3.5	25	3.7	25	3.7
45 to 49 years.....	55	8.4	55	8.4	55	8.4	55	8.4	42	6.5	28	4.0	35	5.0	37	5.8	36	5.7
50 to 54 years.....	39	6.9	39	6.8	39	6.9	39	6.8	33	5.9	18	3.0	23	3.8	27	4.9	27	4.8
55 to 59 years.....	51	9.8	50	9.7	51	9.8	50	9.7	51	9.8	37	6.7	41	7.4	42	8.2	42	8.2
60 to 64 years.....	58	12.6	57	12.6	58	12.6	57	12.6	37	8.5	23	3.0	26	5.6	24	5.6	23	5.5
65 to 69 years.....	-31	-9.6	-31	-9.7	-44	-14.4	-44	-14.5	-5	-1.5	-42	-12.5	-39	-11.7	-44	-14.4	-44	-14.5
70 to 74 years.....	-2	-0.8	-2	-0.9	14	5.7	14	5.6	2	0.4	13	5.0	16	5.8	14	5.7	14	5.6
75 years and over.....	145	32.4	153	34.2	61	16.7	69	19.0		51	13.4	63	16.5	61	16.7	69	19.0	
65 years and over.....	112	11.3	120	12.0	30	3.3	38	4.2	-3	-0.3	23	2.3	39	4.0	30	3.3	38	4.2
1960																		
Males, all ages.....	1,105	10.9	(X)	(X)	1,056	10.4	(X)	(X)	1,050	10.3	1,071	9.7	(X)	(X)	977	9.7	(X)	(X)
Under 5 years.....	96	6.6	(X)	(X)	96	6.6	(X)	(X)	92	6.3	109	6.9	(X)	(X)	96	6.6	(X)	(X)
5 to 9 years.....	65	5.1	(X)	(X)	65	5.1	(X)	(X)	65	5.1	70	5.1	(X)	(X)	65	5.1	(X)	(X)
10 to 14 years.....	52	5.0	(X)	(X)	52	5.0	(X)	(X)	43	4.2	59	5.2	(X)	(X)	52	5.0	(X)	(X)
15 to 19 years.....	103	12.3	(X)	(X)	103	12.3	(X)	(X)	82	10.1	114	12.5	(X)	(X)	103	12.3	(X)	(X)
20 to 24 years.....	129	18.4	(X)	(X)	129	18.4	(X)	(X)	122	17.6	133	17.5	(X)	(X)	129	18.4	(X)	(X)
25 to 29 years.....	135	19.7	(X)	(X)	135	19.7	(X)	(X)	134	19.6	148	19.5	(X)	(X)	134	19.5	(X)	(X)
30 to 34 years.....	125	18.0	(X)	(X)	125	18.0	(X)	(X)	125	18.0	132	17.4	(X)	(X)	120	17.4	(X)	(X)
35 to 39 years.....	97	14.5	(X)	(X)	97	14.5	(X)	(X)	92	13.8	87	12.1	(X)	(X)	79	12.1	(X)	(X)
40 to 44 years.....	75	12.7	(X)	(X)	75	12.7	(X)	(X)	81	13.6	69	11.0	(X)	(X)	63	11.0	(X)	(X)
45 to 49 years.....	64	11.6	(X)	(X)	64	11.6	(X)	(X)	72	12.9	60	10.2	(X)	(X)	53	10.2	(X)	(X)
50 to 54 years.....	88	17.8	(X)	(X)	88	17.8	(X)	(X)	68	14.3	60	11.9	(X)	(X)	53	11.9	(X)	(X)
55 to 59 years.....	22	5.9	(X)	(X)	12	3.4	(X)	(X)	34	8.7	14	3.4	(X)	(X)	12	3.4	(X)	(X)
60 to 64 years.....	28	9.6	(X)	(X)	45	14.6	(X)	(X)	55	17.3	49	14.6	(X)	(X)	45	14.6	(X)	(X)
65 to 69 years.....	-10	-4.6	(X)	(X)	-	-0.2	(X)	(X)	-1	-0.5	-	-0.2	(X)	(X)	-	-0.2	(X)	(X)
70 to 74 years.....	-5	-3.3	(X)	(X)	-9	-6.6	(X)	(X)	-12	-4.1	-10	-6.6	(X)	(X)	-9	-6.6	(X)	(X)
75 years and over.....	42	20.3	(X)	(X)	-20	-13.9	(X)	(X)		-22	-13.9	(X)	(X)	-20	-13.9	(X)	(X)	
65 years and over.....	27	4.7	(X)	(X)	-30	-5.8	(X)	(X)	-14	-2.6	-33	-5.8	(X)	(X)	-30	-5.8	(X)	(X)
Females, all ages.....	815	7.7	(X)	(X)	733	7.0	(X)	(X)	710	6.8	743	6.6	(X)	(X)	653	6.3	(X)	(X)
Under 5 years.....	73	5.1	(X)	(X)	73	5.1	(X)	(X)	77	5.3	86	5.5	(X)	(X)	73	5.1	(X)	(X)
5 to 9 years.....	52	4.2	(X)	(X)	52	4.2	(X)	(X)	55	4.4	58	4.3	(X)	(X)	52	4.2	(X)	(X)
10 to 14 years.....	40	3.9	(X)	(X)	40	3.9	(X)	(X)	41	4.0	47	4.2	(X)	(X)	40	3.9	(X)	(X)
15 to 19 years.....	80	9.6	(X)	(X)	80	9.6	(X)	(X)	76	9.1	91	10.1	(X)	(X)	80	9.6	(X)	(X)
20 to 24 years.....	68	9.5	(X)	(X)	68	9.5	(X)	(X)	76	10.5	75	9.7	(X)	(X)	68	9.5	(X)	(X)
25 to 29 years.....	58	8.3	(X)	(X)	58	8.3	(X)	(X)	56	8.1	65	8.5	(X)	(X)	56	8.1	(X)	(X)
30 to 34 years.....	40	5.6	(X)	(X)	40	5.6	(X)	(X)	35	5.0	41	5.2	(X)	(X)	35	5.0	(X)	(X)
35 to 39 years.....	41	6.0	(X)	(X)	41	6.0	(X)	(X)	23	3.4	26	3.6	(X)	(X)	23	3.4	(X)	(X)
40 to 44 years.....	37	6.1	(X)	(X)	37	6.1	(X)	(X)	25	4.2	29	4.4	(X)	(X)	25	4.2	(X)	(X)
45 to 49 years.....	47	8.0	(X)	(X)	47	8.0	(X)	(X)	38	6.6	42	6.9	(X)	(X)	38	6.6	(X)	(X)
50 to 54 years.....	92	17.4	(X)	(X)	92	17.4	(X)	(X)	58	11.7	65	12.3	(X)	(X)	58	11.7	(X)	(X)
55 to 59 years.....	40	9.5	(X)	(X)	26	6.5	(X)	(X)	39	9.5	30	6.8	(X)	(X)	26	6.5	(X)	(X)
60 to 64 years.....	45	13.5	(X)	(X)	61	17.4	(X)	(X)	61	17.5	68	18.3	(X)	(X)	61	17.4	(X)	(X)
65 to 69 years.....	9	3.2	(X)	(X)	14	5.0	(X)	(X)	11	4.1	15	5.3	(X)	(X)	14	5.0	(X)	(X)
70 to 74 years.....	13	7																

Table 6. Preferred Estimates of the Percent of Net Undercount of the Population, by Sex, Race, and Broad Age Groups: 1970 and 1960

(Composite of analytic methods, corresponding to set D estimates (adjusted in 1970). Base of percentages is the corrected population. Minus sign (-) indicates a net overcount. Estimates for 1970 are based on census figures which have been adjusted for race misclassification in the complete count, affecting some 327,000 persons, mostly of Spanish ancestry, and for a gross overstatement of centenarians amounting to about 103,000 persons)

Year and age	All classes	All races		White			Negro		
		Male	Female	Total	Male	Female	Total	Male	Female
1970									
All ages.....	2.5	3.3	1.8	1.9	12.5	1.4	7.7	9.9	5.5
Under 5 years.....	3.5	3.6	3.3	2.1	2.3	2.0	10.1	10.4	9.8
5 to 9 years.....	3.0	3.2	2.9	2.3	2.4	2.2	7.3	7.7	6.9
10 to 14 years.....	1.3	1.4	1.2	1.0	1.1	0.9	3.2	3.5	2.8
15 to 19 years.....	1.2	1.5	0.8	0.9	1.3	0.5	3.7	4.3	3.2
20 to 24 years.....	2.3	3.3	1.4	1.8	2.5	1.1	8.5	12.1	5.2
25 to 34 years.....	4.3	5.7	2.8	3.4	4.3	2.4	12.5	18.5	6.7
35 to 44 years.....	3.1	5.3	0.9	2.0	3.6	0.5	10.7	17.7	4.0
45 to 54 years.....	2.1	3.6	0.6	1.4	2.7	0.1	8.7	12.4	5.3
55 to 64 years.....	2.6	2.9	2.4	1.1	2.2	1.9	8.0	9.2	7.0
65 years and over.....	1.8	0.9	2.4	1.8	1.2	2.2	1.2	-3.1	4.2
1960									
All ages.....	2.7	3.3	2.2	2.0	2.4	1.6	8.0	9.7	6.3
Under 5 years.....	2.2	2.6	1.8	1.5	1.9	1.1	5.8	6.6	5.1
5 to 9 years.....	2.3	2.8	1.9	1.9	2.4	1.5	4.7	5.1	4.2
10 to 14 years.....	2.4	2.9	1.8	2.0	2.5	1.5	4.4	5.0	3.9
15 to 19 years.....	4.2	5.0	3.5	3.2	3.8	2.4	10.9	12.3	9.6
20 to 24 years.....	4.7	6.1	3.4	3.4	4.3	2.4	13.9	18.4	9.5
25 to 34 years.....	3.6	5.5	1.7	2.3	3.6	1.0	12.5	18.5	6.5
35 to 44 years.....	1.7	3.3	0.3	1.0	2.2	-0.2	7.6	11.5	3.8
45 to 54 years.....	3.3	3.4	3.1	2.5	2.5	2.4	9.9	11.0	9.0
55 to 64 years.....	2.0	1.2	2.8	1.1	0.5	1.7	10.1	8.5	11.6
65 years and over.....	1.9	-	3.5	2.2	-	3.5	-1.0	-5.8	2.8

- Represents zero.

¹Required figure, as given in tables 2 and 3, is 2.4 percent.

Table 7. Estimates of the Percent of Net Undercount of Children Under 15 Years of Age, by Age, Sex, and Race: 1940 to 1970

(Base of percentages is the corrected population)

Age and year	All classes	White		Negro and other races		Negro	
		Male	Female	Male	Female	Male	Female
UNDER 5 YEARS							
1970							
Unadjusted.....	3.5	2.6	2.2	9.2	8.6	10.4	9.9
Adjusted ¹	3.5	2.3	2.0	10.3	9.7	10.4	9.8
1960.....	2.2	1.9	1.1	6.9	5.5	6.6	5.1
1950.....	4.7	4.3	3.6	10.0	9.3	9.6	9.0
1940.....	7.1	6.5	6.0	16.0	14.5	16.0	14.4
5 TO 9 YEARS							
1970							
Unadjusted.....	3.1	2.7	2.4	6.5	5.7	7.8	6.9
Adjusted ¹	3.1	2.4	2.2	7.5	6.6	7.7	6.9
1960.....	2.3	2.4	1.5	5.1	4.3	5.1	4.2
1950.....	3.6	3.0	2.4	10.6	8.9	10.4	8.5
10 TO 14 YEARS							
1970							
Unadjusted.....	1.4	1.3	1.2	2.6	1.8	3.6	2.9
Adjusted ¹	1.4	1.1	0.9	3.5	2.7	3.5	2.8
1960.....	2.4	2.5	1.5	5.2	4.2	5.0	3.9
1950.....	1.8	1.0	1.0	6.2	6.5	7.2	6.0

¹Adjusted estimates are based on census figures which have been adjusted for race misclassification in the complete count and for an overstatement of centenarians.



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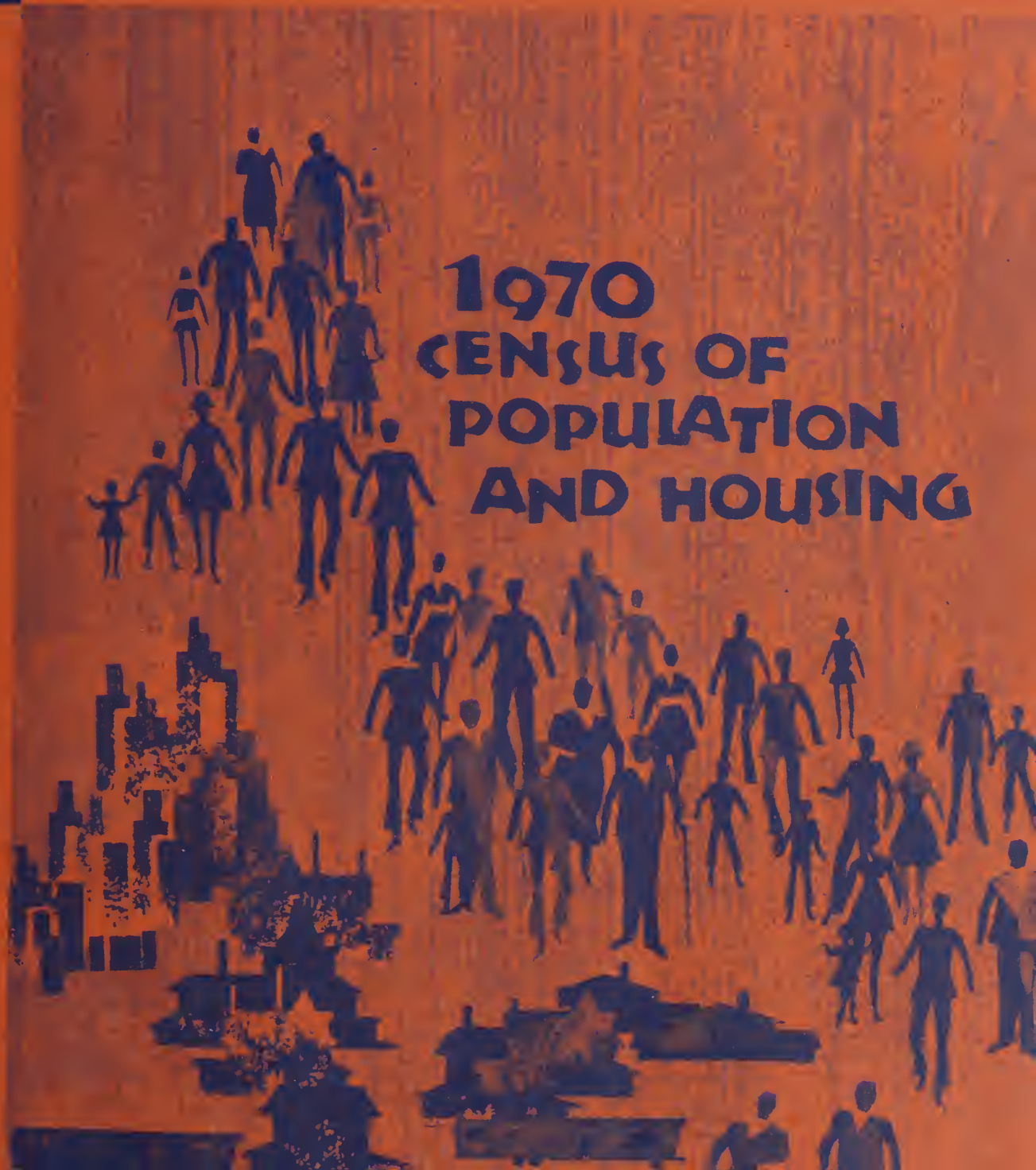
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The Coverage of Housing in the 1970 Census

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1970 CENSUS OF POPULATION AND HOUSING



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OF COMMERCE
Social and Economic
Statistics Administration
BUREAU OF
THE CENSUS

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Daniel B. Levine, Associate Director for Demographic Operations

Joseph Waksberg, Associate Director for Statistical
Standards and Methodology

David L. Kaplan, 1970 Census Coordinator

STATISTICAL METHODS DIVISION

Morton Boisen, Chief

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**1970
CENSUS OF
POPULATION
AND HOUSING**

Evaluation and Research Program

**The Coverage of Housing
in the 1970 Census**

Issued October 1973

Preface

This is one of a series of reports on results of the Evaluation and Research Program of the 1970 Census of Population and Housing. The program is comprised of a variety of studies, each designed to produce data on the accuracy of selected subject matter or on the effectiveness of specific methodological features of the census-taking process. The major findings and results from these studies are published in the PHC(E) series of reports.

This report presents data on the accuracy of the census housing unit counts of occupied and vacant units, on the proportion of occupied units that were misclassified as vacant, and vice versa, as well as some information on the characteristics of missed units. The results are based on three separate sample surveys that were done subsequent to and independent of the census.

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THE COVERAGE OF HOUSING IN THE 1970 CENSUS

Chapter 1. Background and Results

A. Background

The 1970 Census Evaluation and Research Program included a number of studies which may be divided into two general categories.

- (1) Studies that measured "content" error, i.e., the accuracy of data for enumerated persons and housing units.
- (2) Studies that measured "coverage" error, i.e., how completely persons and housing units were counted in the census.

This report discusses the coverage error and, specifically, describes the findings from three separate studies that measured the coverage of housing. This chapter presents results from those three studies. However, a brief description of how housing units were listed in the 1970 Census, of the types of errors that were studied, and of the evaluation procedures are given first to provide a fuller understanding of the data presented and of the inferences drawn. A detailed discussion of the evaluation methodology and of the limitations on the data is given in the remaining chapters of this report.

1. REVIEW OF THE CENSUS

The 1970 Census was taken partly by mail and partly by enumerator canvass. Approximately 60 percent of the population was enumerated by mail—those who lived in or near the large metropolitan areas. This was done by addressing and mailing out census questionnaires using residential address lists that had been acquired by the Bureau and by asking the households to complete and mail back the questionnaires to the census offices. Census enumerators made personal visits to the housing units from which questionnaires were not mailed back.

The mailing lists were compiled in several ways. For most cities in metropolitan areas, the Bureau obtained from commercial sources computer tapes of residential addresses and had the addresses checked and corrected by the post office. The addresses were then grouped into census enumeration districts (ED's)¹ and printed out as Tape Address Register (TAR) ED's.

For areas where commercial address registers could not be used, ED mailing lists were created by census listers and checked by the post office. Census enumeration districts that were covered in this manner are referred to as Prelist ED's. In both TAR and Prelist areas, census enumerators added a small number of previously unlisted units during the field enumeration.

¹ A census enumeration district is an area that comprises the workload for one enumerator. In mail areas, the average size ED consisted of 450 housing units that were coded to specified geography. In conventional areas, the average size ED consisted of about 250 housing units contained within a defined land area. Thus, the conventional ED's were definable land areas whereas some mail ED's were not definable by boundaries.

The remaining 40 percent of the population was enumerated by the conventional list-enumerate procedures whereby census enumerators canvassed their assigned ED's to list the housing units and enumerate the people. At the conclusion of the field enumeration in conventional areas, the address lists that had been made for the South region (about half of all conventional areas) were checked for completeness by the post office. During the census processing, the field counts were then increased to compensate for the number of missed units identified in that operation. That postal review is referred to in this report as the Post Enumeration Post Office Check (PEPOC).

2. THE TYPES OF ERRORS STUDIED

Errors in the coverage of housing in the 1970 Census are classified in the following ways.

Space errors

Errors in which both the living quarters and its occupants were missed in the census or in which they were counted more than once (overenumerated) are referred to in this report as "space" errors. All missed and overenumerated vacant units are space errors. Overenumerated units may be caused by duplications, or they may result from nonresidences being counted as living quarters.

Space errors are usually the largest component of housing coverage error, and when the missed or overenumerated units are occupied, the error affects the population count as well as the housing count.

Definitional errors

Another type of error affects the census housing count and the population and housing characteristics, but usually has no effect on the total population count. This type of error is called a "definitional" error and is perhaps best described by a brief example. Consider an address that appears in the census listings as a single-family home and, consequently, receives only one census questionnaire. The home is owned by a household that has converted part of the house into a separate apartment for use by another family. Since only one census questionnaire is received by the owner, he lists the other family as members of his household. In this case, only one living quarters would be counted where two exist, but if the owner listed everyone in the other family, the population count would be correct.

The definitional error rate has been low in past censuses, usually around one-half of 1 percent, but there was some concern that the rate would be greater for a mail census because the persons who filled out the census questionnaires were untrained in census housing unit definitions.

In discussing the space and definitional errors the term "total or gross error" refers to the sum of all coverage error, i.e., misses plus overenumerations, or space plus definitional errors.

Reference is also made in this report to "net error," which is defined as overenumerations minus misses.

Occupancy errors

A third type of error examined was incorrect occupancy classification for enumerated units, i.e., the number of vacant units that had been improperly enumerated as occupied in the census, and the number of occupied units that were misclassified as vacant. This type of error does not affect the total housing count (although it distorts the separate figures for occupied and vacant housing) but does contribute to population coverage errors.

3. THE EVALUATION SAMPLES

The CPS-Census Match (E3) (Measured space misses)

An important part of the evaluation program consisted of searching the 1970 Census records for the approximately 56,000 units that had been enumerated in the March 1970 Current Population Survey (CPS). (The CPS is a national survey that is conducted monthly in order to gather labor force data.)

This is the only 1970 evaluation study that was designed to obtain national estimates of space misses. Other objectives were to compare the distribution of missed units between mail and conventional census areas, to provide data for various types of geographic areas, and to obtain information on the characteristics of missed persons. The latter was done by identifying CPS household members who had not been reported in the census and examining their age, sex, and race distribution as well as certain social and economic factors, such as their labor force status, income, etc. The data on the characteristics of missed persons are given in a later report in this series.

The search of the census records consisted of determining the census enumeration districts in which the CPS units should have been counted and examining those records. Both names and addresses were used in the search, and several quality control checks were made to guard against "false" matching and improper failure to match. In addition, CPS interviewers revisited the sample units that had not been matched to see if the addresses that had been searched for were correct addresses and to see if the units could have been identified in other ways in the census. In many cases the CPS interviewers, who were familiar with the sample areas, were given copies of the census listings so that on-the-spot checks could be made of what had been counted in the census. Finally, an intensive review was made of all ED's in which the unmatched units might reasonably have been counted in the census, e.g., the search was extended to the ED's that surrounded the ones in which the units were thought to exist in an attempt to overcome problems of misallocations.

Housing Coverage in Mail Areas (E6) (Measured space misses and overenumerations in mail census areas)

A second major evaluation study was directed towards measuring both "space" undercounts and overcounts in mail census areas. Since the mail census was essentially new in 1970, it was felt that intensive efforts should be made to evaluate the completeness and adequacy of the census mailing lists and to evaluate the methods used to compile the mailing lists. The study was based on two samples:

- a. The street addresses of all buildings in about 8,000 city blocks were relisted after the census in order to estimate missed units in missed structures.
- b. For about 20,000 street addresses in those areas, the units within the buildings that were included in the census were relisted for comparison with the census records in order to measure both missed and overenumerated units within the structures. The overenumerations may result from either duplications or from questionnaires that were prepared for nonresidences.

Aside from measuring both underenumeration and overenumeration, the study was also designed to:

- compare the coverage error for the census mailing lists that were derived from commercial registers (TAR) with the error for the registers that had been created by census listers (Prelist).
- examine the characteristics of structures where coverage error occurred; for example, the size and age of such structures, and the extent to which their census listings contained erroneous deletions were examined.
- determine the extent of occupancy classification errors.

The comparison of the reinterview listings to the census records was, in general, done in the same way that the CPS-Census Match had been done. In this study, however, the geographic allocation to census ED's was usually unnecessary since the sample blocks and addresses had been selected from 1970 ED's.

Evaluation of Housing Unit Definitional Errors (E7) (Measured definitional misses and overenumerations)

A third study dealt with measuring definitional errors in housing counts. Experience had shown that certain responses on the census questionnaires indicated that definitional errors may have been made. For example, among the respondents who had reported nonrelatives as members of their households, a reinterview occasionally revealed that the nonrelatives occupied separate living quarters and that two or more housing units should have been counted in the census. Conversely, where households reported that living quarters were lacking certain facilities, e.g., a kitchen, it was sometimes a clue that the respondents were actually part of another household and should not have been counted as occupying a separate unit. Earlier studies had shown that definitional errors rarely occurred among households that did not report those situations.

To evaluate this problem in the census, a probability sample of about 200,000 census questionnaires was screened and subsamples of those that exhibited a high potential for definitional error were selected. A reinterview was then conducted with a subsample of approximately 3,000 households in order to ascertain the magnitude of definitional error.

B. Results

Before proceeding with a discussion of the evaluation results, a few comments are in order regarding the limitations on these data. First, the estimated error rates that are cited are based on sample data and are subject to sampling variability. The estimated standard errors of the error rates are given in the tables included in this report. The particular sample used in this survey is one of a large number of all possible samples of the same size that could have been selected using the same sample design. Estimates derived from the different samples would differ from each other. The deviation of a sample estimate from the average of all possible samples is called the sampling error. The standard error of a survey estimate is a measure

of the variation among the estimates from the possible samples and thus is a measure of the precision with which an estimate from a particular sample approximates the average result of all possible samples. To illustrate, if all possible samples were selected, each of these were surveyed under essentially the same conditions, and an estimate and its estimated standard error were constructed from each sample, then,

- (1) approximately two-thirds of the intervals from one standard error below the estimate to one standard error above the estimate would include the average value of possible samples. We call this interval the two-thirds confidence interval.
- (2) approximately nine-tenths of the intervals from 1.6 standard errors below the estimate to 1.6 standard errors above the estimate would include the average value of all possible samples. We call this interval the 90 percent confidence interval.
- (3) approximately nineteen-twentieths of the intervals from two standard errors below the estimate to two standard errors above the estimate would include the average value of all possible samples. We call this interval the 95 percent confidence interval.
- (4) almost all intervals from three standard errors below the sample estimate to three standard errors above the sample estimate would include the average value of all possible samples.

Second, and perhaps most important, unless the estimated error rates are specifically labeled "after processing," the results are based only on the numbers of housing units that were listed in the census address registers. In most areas, the count of housing units that was made during the field enumeration was essentially unchanged by processing. If, however, any substantial changes were made, the effects have been estimated for this report and are labeled "after processing."

Table A. Housing Unit Total Missed Rates for the United States Before and After Processing: 1970

(Data shown as estimated number of missed units per 100 enumerated)

Type of miss ¹	Percent missed before processing	Standard error of rate	Percent missed after processing	Standard error of rate
(1)	(2)	(3)	(4)	(5)
Total missed units..	2.8	0.2	2.5	0.2
Space miss.....	2.5	0.2	2.2	0.2
Occupied units ² ..	1.6	0.2	1.3	0.2
Vacant units ² ...	0.9	0.1	0.9	0.1
Definitional miss..	0.3	0.1	0.3	0.1

¹The omission of a living quarters and its occupants is a space miss. All missed vacant units are space misses. A correct count of persons, but counting them as occupying too few living quarters is a definitional miss.

²Only tables A and B have total units as a base whereas all other tables have only occupied or vacant units as a base.

Source: CPS-Census Match, especially table 1, and definitional error study, especially table K.

Data tables showing the major tabulations that were made from the evaluation studies are given at the end of this report. For the reader's convenience, however, pertinent data have been extracted and reproduced as text tables throughout the discussion of the results.

1. COVERAGE ERROR RATES FOR 1970 AND COMPARISON WITH 1960

a. The Total Missed Rate for Housing Units in 1970 is Estimated to be 2.5 Percent; About Half of the Misses Resulted in a Concomitant Population Undercount (table A). For each 100 units that were finally enumerated in the census, an estimated 2.5 were missed—combining both space and definitional misses (column 4). Because the vacant and definitional omissions do not affect the total population count, only about one-half of the missed units also resulted in missed persons.

For the field enumeration only, an estimated 2.8 percent were initially missed (column 2). Taking into account the approximately 214,000 units that were later added during processing, the total missed rate was reduced to 2.5 percent. Most of these units were added by the post office check (PEPOC) that was done in the South after the field enumeration, and nearly all of the units were occupied.

Table B. Comparison of Housing Unit Total Missed Rates: 1970 and 1960

(Data shown as estimated number of missed units per 100 enumerated. Rates based on final census counts)

Type of miss ¹	1970 Census		1960 Census	
	Percent missed after processing	Standard error of rate	Percent missed	Standard error of rate
(1)	(2)	(3)	(4)	(5)
Total missed units...	2.5	0.2	3.3	0.3
Space miss.....	2.2	0.2	3.1	0.3
Occupied units ² ..	1.3	0.2	2.0	0.3
Vacant units ²	0.9	0.1	1.1	0.1
Definitional miss..	0.3	0.1	0.2	0.1

¹The omission of a living quarters and its occupants is a space miss. All missed vacant units are space misses. A correct count of people, but counting them as occupying too few living quarters is a definitional miss.

²Only tables A and B have total units as a base whereas all other tables have only occupied or vacant units as a base.

Source: CPS-Census Match, especially table 1, and definitional error study, especially table K. 1960 estimates from unpublished material on the 1960 Census Evaluation Program.

b. The Total Missed Rate in 1970 Was Lower Than in 1960 Due to Better Coverage of Occupied Units (table B).

An estimated 3.3 units were missed in 1960 per 100 enumerated compared to the 2.5 estimated for 1970. (The difference between the estimates for the two censuses is beyond sampling variability at the 95 percent confidence level.) An examination of the components of error indicates that the improvement over 1960 resulted from better coverage of the occupied housing. The coverage of vacant units and the level of definitional undercounts seem to be about the same for the two censuses.

The 1970 estimates take into account the housing that was added to the census through coverage checks that were made after the field enumeration. The 1960 Census did not include those post-censal coverage improvement procedures, and the final 1960 counts were virtually the same before and after processing.

c. The Net Coverage Error for Occupied Units in 1970 Was Probably Smaller Than in 1960 (table C).

Estimates of the net error in 1970 were obtained only for mail areas and it is difficult to make a direct comparison between the 1970 and 1960 Censuses. A useful, though somewhat limited, comparison was made between occupied housing in 1960 and 1970 SMSA's, and those data indicate that the net error was lower in 1970.

Table C. Estimated Net Coverage Error Rates for Occupied Units in SMSA's: 1970 and 1960

(Data shown as net coverage error for occupied units per 100 enumerated. 1970 data shown before processing)

Census	Inside SMSA					
	Total inside SMSA		In central city		Not in central city	
	Net error rate	Standard error of rate	Net error rate	Standard error of rate	Net error rate	Standard error of rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1970...	-1.1	0.1	-1.1	0.2	-1.0	0.2
1960...	-1.9	0.2	-2.2	0.2	-1.3	0.3

Source: 1970 estimates from Mail Area Evaluation Study, table 7. 1960 estimates from unpublished material on the 1960 Census Evaluation Program.

In 1960, the listing and enumeration activities were basically the responsibility of the census enumerators, and their overall knowledge of their assigned ED's tended to prevent duplicate enumerations. Thus, in 1960 the net error rate approximated the gross missed rate. In testing for the 1970 mail census, however, it was found that duplications occurred more frequently when the various census-taking operations were carried out by several persons whose individual activities were often independent of the listing and mailing activities.² The mail area evaluation study reveals that a modest amount of overenumeration (0.3 of 1 percent) did occur in the mail census. The lower net error in 1970 was therefore the combined effect of fewer misses and more overenumerations.

²Unpublished memorandum, Special Census of New Haven, Results Memorandum No. 22.

2. THE COVERAGE OF OCCUPIED UNITS

In discussing the estimated error rates from the CPS-Census Match and the mail area study, the reader should note that while both studies provided estimated error rates in mail areas (and their estimates were not always consistent) the data from the mail area study are the Bureau's preferred estimates. The mail area study is based upon a much larger sample than the CPS-Census Match and accordingly, those data are subject to smaller standard errors. More importantly, the CPS-Census Match is probably subject to a larger bias than the mail area study.

a. The Occupied Space Missed Rate for the Total United States in 1970 is Estimated at 1.7 Percent for Field Enumeration; the Imputational Procedures Reduced This Missed Rate to 1.4 Percent (table D).

For occupied units in 1970, the space missed rate for field coverage is estimated at 1.7 percent (column 2, table D). About one-fourth of the errors occurred within structures included in the census and about three-fourths were due to missed structures. During processing, the imputational procedures added about 200,000 occupied units (most of which came from the Post Enumeration Post Office Check in the South) and thus reduced the missed rate to 1.4 percent.

The coverage in mail areas seems to be much better than in conventional areas with 1.2 percent missed in mail areas (column 6) versus 2.6 percent initially missed in conventional areas (column 12). After processing, the missed rate in conventional areas was reduced to 1.9 percent (column 13).

It should be noted, of course, that the mail census areas were quite different geographically from the conventional areas (the former being the more densely populated urban areas) and one should expect some differences. For example, although the distributions of the misses—entire structure misses versus within structure misses—are dissimilar for the two areas, the conventional areas consist mainly of single-family homes and omissions were more likely to have been entire structures.

b. In Mail Areas the Net Field Coverage Error for Occupied Units is Estimated at 1 Percent Missed (table E).

The mail area study provides further information about the quality of the 1970 mailing lists (column 2). For occupied units the space error rates are estimated at 1.3 percent missed and 0.3 percent overenumerated for a net undercount of 1 percent.

c. Coverage Appears To Be Better for Areas Where Mailing Lists Were Compiled From Commercial Registers Than for Areas Where Lists Were Created by Census Listers (tables D and E).

In comparing the coverage of housing for the TAR mail areas versus the Prelist mail areas, the analysis relied primarily upon the mail area study estimates (the preferred set of data). Examination of those estimates—table E—shows that the rate of missed units in missed addresses was higher among the Prelist areas than among TAR areas and that the difference is beyond sampling variability at the 95 percent confidence level.

Since we have reservations about the CPS-Census Match data, some hypotheses about possible biases in those estimates are worth exploring, especially since such biases may have caused the CPS-Census Match to exaggerate the difference between the TAR and Prelist areas.

Table D. Estimated Space Missed Rates for Occupied Housing Units in 1970, by Listing Procedure (E3)

(Data shown as estimated numbers of missed units per 100 enumerated occupied units. Error rates reflect space missed occupied units only. Unless specifically labeled "after processing," data based on field enumeration coverage only.¹ Detail may not add to totals due to rounding)

Category (1)	Total United States				Mail ²						Conventional			
	Space missed rate		Standard error of rate		Total		TAR		Prelist		Space missed rate		Standard error of rate	
	Be-fore proc-ess-ing	After proc-ess-ing	Be-fore proc-ess-ing	After proc-ess-ing	Space missed rate	Stand-ard error of rate	Space missed rate	Stand-ard error of rate	Space missed rate	Stand-ard error of rate	Be-fore proc-ess-ing	After proc-ess-ing	Be-fore proc-ess-ing	After proc-ess-ing
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Total missed occupied units.....	1.7	1.4	0.2	0.2	1.2	0.2	0.9	0.2	2.6	0.4	2.6	1.9	0.1	0.1
A. Missed occupied units in enumerated addresses.....	0.4	(NA)	0.1	(NA)	0.5	0.1	0.5	0.1	0.4	0.1	0.3	(NA)	0.1	(NA)
B. Missed occupied units in missed addresses.....	1.3	(NA)	0.1	(NA)	0.7	0.2	0.4	0.2	2.1	0.3	2.4	(NA)	0.1	(NA)

NA Not available.

¹Processing effects not shown for mail areas since the effects were trivial.

²Note that the missed rates for mail areas were also estimated from another study (the mail area study) and those data are the more reliable.

Source: CPS-Census Match, table 1.

Table E. Estimated Coverage Error Rates for Occupied Housing Units in Mail Areas, by Listing Procedure

(Data shown as estimated number of errors per 100 enumerated units. Error rates reflect space error occupied units only. Data based on field enumeration coverage only. Detail may not add to totals due to rounding)

Category (1)	Total mail area		Listing procedure			
			TAR		Prelist	
	Error rate	Standard error of rate	Error rate	Standard error of rate	Error rate	Standard error of rate
	(2)	(3)	(4)	(5)	(6)	(7)
A. Total missed occupied units.....	1.3	0.1	1.3	0.1	1.6	0.2
1. Missed occupied units in enumerated addresses.....	0.6	0.1	0.6	0.1	0.5	0.1
2. Missed occupied units in missed addresses.....	0.7	0.1	0.6	0.1	1.2	0.1
B. Overenumerated occupied units.....	0.3	0.1	0.3	0.1	0.2	0.1
C. Net coverage error for occupied units ¹	-1.0	0.1	-1.0	0.1	-1.5	0.2

¹Net coverage error equals overenumeration rate minus missed rate. Minus sign indicates net undercount in the census.

Source: 1970 Mail Area Evaluation Study, table 6.

(1) Unlike the mail area study the CPS-Census Match required allocating each sample unit to a 1970 ED in order to search the census records. It is likely, therefore, that the E3 estimates are biased upwards because of matching difficulties.

This hypothesis seems inconsistent, however, with the fact that the CPS-Census Match provided a lower missed rate for TAR areas than did the mail area study.

(2) The TAR areas are essentially the large cities of metropolitan areas. In such areas most of the CPS units were selected from the 1960 census listings; therefore the CPS was missing units that had been missed in 1960. A second hypothesis assumes that units which were missed in 1960 have a high probability of being missed in 1970 as well. Under this assumption, there is correlated coverage bias between the CPS and census, and some units that were missed in 1970 had no chance of being identified as missed because they were also left out of the CPS.

These hypotheses undoubtedly have some validity. It has been demonstrated that the more steps required to match two sets of records, the more difficult the match becomes.

Both sets of mailing lists were checked by the post office but it seems that the postal reviews were more effective in reducing the incidence of missed structures in TAR areas. It might be reasonable to expect this because the TAR mailing lists usually consisted of street names and house numbers and may have been more easily checked by the post office than the Prelist mailing lists that often consisted of rural addresses. Moreover, the TAR lists were reviewed more often by the post office than were the Prelist addresses. This statement must be qualified, however, because the TAR areas included the large metropolitan cities in which other special coverage improvement procedures were employed, and they mask somewhat the effect of the postal reviews.

d. The Mail Area Study Gives Inconclusive Evidence of Occupied Unit Coverage Differences Relative to Time of Prelisting

In order to avoid listing difficulties that might have arisen due to inclement weather conditions, the prelisting of mailing addresses was generally done in the fall of 1969 for the

Table F. Comparison of 1970 and 1960 Estimated Space Missed Rates for Occupied Units, by SMSA Residence

(Data shown as estimated number of missed occupied units per 100 enumerated occupied units. Error rates reflect space missed occupied units only. Unless specifically labeled "after processing," data based on field enumeration coverage only. Detail may not add to totals due to rounding)

Source of estimate	Category	Inside SMSA						Outside SMSA			
		Total inside SMSA		In central city		Not in central city		Space missed rate		Standard error of rate	
		Space missed rate	Standard error of rate	Space missed rate	Standard error of rate	Space missed rate	Standard error of rate	Before processing	After processing	Before processing	After processing
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1970 CPS-Census Match (table 2)	A. Total missed occupied units ¹ .	1.4	0.2	0.9	0.2	1.9	0.3	2.6	2.0	0.1	0.1
	1. Missed occupied units in enumerated addresses.....	0.5	0.1	0.7	0.2	0.3	0.1	0.2	(NA)	0.1	(NA)
	2. Missed occupied units in missed addresses.....	0.9	0.2	0.2	0.1	1.6	0.3	2.4	(NA)	0.1	(NA)
1970 Coverage Evaluation in Mail Areas (table 7)	B. Total missed occupied units.	1.3	0.1	1.5	0.2	1.2	0.1	(²)	(NA)	(²)	(NA)
	1. Missed occupied units in enumerated addresses.....	0.6	0.1	1.0	0.2	0.3	0.2	(²)	(NA)	(²)	(NA)
	2. Missed occupied units in missed addresses.....	0.7	0.1	0.5	0.1	0.9	0.1	(²)	(NA)	(²)	(NA)
1960	C. Total missed occupied units.	1.9	0.2	2.2	0.2	1.5	0.3	2.7	(³)	0.2	(³)
	1. Missed occupied units in enumerated addresses.....	0.9	0.1	1.2	0.2	0.5	0.1	0.8		0.2	
	2. Missed occupied units in missed addresses.....	1.0	0.1	1.0	0.2	1.0	0.2	1.9		0.2	

NA Not available.

¹The mail area estimates (line B) are the preferred set of estimates for SMSA's.

²Sample restricted to mail areas only and inadequate for meaningful estimation outside SMSA's.

³The 1960 processing made virtually no change in the field counts of housing units.

Northeast and North Central regions and in the early spring of 1970 for the South and West regions. Separate error rates were tabulated according to the time of listing in order to see if there is any evidence that the coverage in fall listing areas suffered because many of the addresses became obsolete during the several months that elapsed between the listing period and the census mailout. (In another census evaluation study that was concluded shortly after the census, there was some indication that this might have happened.³)

The mail area study provided inconclusive evidence on whether there was a coverage differential for the two listing periods. The small sample size for spring-listed areas yielded estimates with large standard errors which obscured any differences that may have existed.

e. The Use of the Post Office to Check the Completeness of the Census Address Lists Apparently Made an Important Contribution to the Improved Coverage of the 1970 Census (table F).

The postal checks of the census housing lists improved the counts both inside and outside SMSA's.

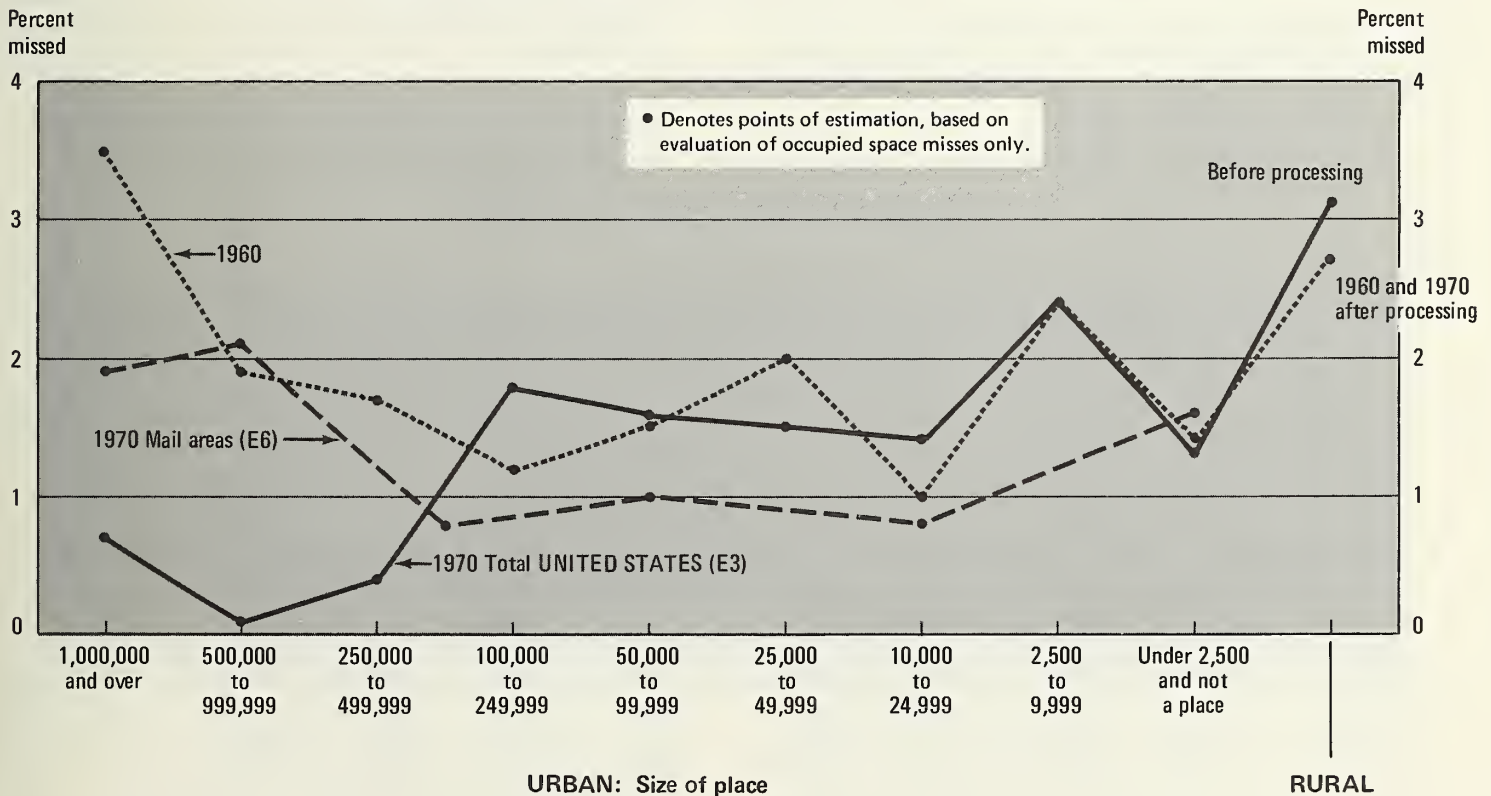
For SMSA's the two studies show virtually the same missed rate—1.4 percent from the CPS-Census Match and 1.3 percent from the mail area study (column 3)—both below the 1960 rate.

Outside SMSA's (column 9) the CPS-Census Match provides the better estimates for 1970 since the mail area study covered very little of the non-SMSA area. There does not appear to be any improvement in the field enumeration over 1960; however, the Post Enumeration Post Office Check that was conducted for the South region improved the housing coverage for about 40 percent of the non-SMSA areas. Taking into account the PEPOC procedure, the final missed rate outside SMSA's is estimated at approximately 2 percent and represents an important gain over 1960. (See column 10.)

For both studies there is a notable difference between the 1960 and 1970 estimates for central cities (column 5). In 1960, the missed rate was about equally divided between missed units in enumerated addresses and missed units in missed addresses. In 1970, the missed structure rate seems to be not more than half the rate for within structure omissions. Both studies appear to give good evidence that there was a reduction in the incidence of missing entire structures in 1970, and this is basically what the mail census pretesting had indicated would happen. Other geographic distributions of the missed rates seem to support this finding. Following the 1950 Census, an evaluation of the population coverage showed that when the omissions were plotted by place size, they tended to form a "U" shaped curve with the high points representing the large cities and the rural areas. A coverage evaluation of occupied housing in the 1960 Census displayed the same trend. A similar examination of the occupied misses was made in 1970, and the results are shown in chart 1.

³PHC(E)-3—Results and Analysis of the Experimental Mail Extension Test.

Chart 1.—Percent Occupied Housing Space Misses—Urban by Size of Place and Rural: 1960 and 1970 Censuses



For places of 250,000 persons or more, the mail area study is believed to provide the best estimates of coverage error in 1970 (because of the possible biases in the CPS-Census estimates that were mentioned before). For all other places, the CPS-Census estimates are preferred since that sample covered the entire country. The reader will note that for rural areas separate estimates are shown for before and after processing; the latter taking into account the effects of the post office check that was done in the South region.

In comparison with 1960, it appears that one high end of the curve was effectively reduced in 1970; this was probably the result of the coverage improvements made in the large cities.

(The approximate distribution of occupied housing in 1970 is displayed in chart 2 for the reader's use in determining the proportion of units to which the various missed rates apply.)

f. Missed Rates Appear to Vary for Regions; Without PEPOC the Undercount Would Have Been More Severe in the South Region Than in Other Regions (table G).

A comparison of the occupied unit missed rates, as estimated by the CPS-Census Match, shows some variation across regions (columns 6-15). The field coverage may have been somewhat better in the North Central region and worse in the South region. However, taking into account the coverage improvements that were made in the South by the Post Enumeration Post Office Check, the estimated missed rate for the South reduced to 1.7 percent, about the same as for other regions and a substantial improvement over 1960.

3. THE COVERAGE OF VACANT UNITS

Previous attempts to evaluate the census coverage of vacant units have nearly always culminated in less than satisfactory results, and the efforts in 1970 proved to be no exception. There are a

number of reasons why the estimates that were made provide, at best, only crude approximations of the vacant undercount. As with census enumerators, the evaluation interviewers were often faced with difficulties in determining whether a vacant structure should have been included in the census. For example, questions arose as to whether some vacants should have been listed, or should have been left out because they were unfit for habitation, or were nonresidential at the time of the census. In addition, evaluation interviewers frequently had to determine whether or not units of new construction were available for occupancy at the time of the census. These decisions have been made subjectively with the result that the Bureau has probably classified some structures as missed when they did not belong in the housing inventory at all at the time of the census, and vice versa.

In addition to the problems that interviewers must deal with in compiling housing unit lists to be compared with the census lists, the matching itself can be difficult—particularly when the vacant units may be identified differently on the two lists. Also, the tasks of determining in which census ED's to look for the units and of concluding whether or not they were in the census are further complicated by the lack of occupants' names. These types of problems were encountered in the 1970 evaluation studies, and their effects are undoubtedly reflected in the estimates of coverage error. The estimated error rates are given in this report, but they are generally considered unreliable and the following discussion has been deliberately limited.

Estimates of the sampling variability of the error rates are also given in this report but they should be considered as understatements of the reliability of the vacant unit error rates. The estimates of missed and overenumerated vacant units are also subject to bias because of difficulty in matching some units to the census and because some newly constructed sample units that were classified as "missed" probably did not belong in the census.

Chart 2.—Approximate Distribution of Housing Units—Urban by Size of Place and Rural: 1970 Census

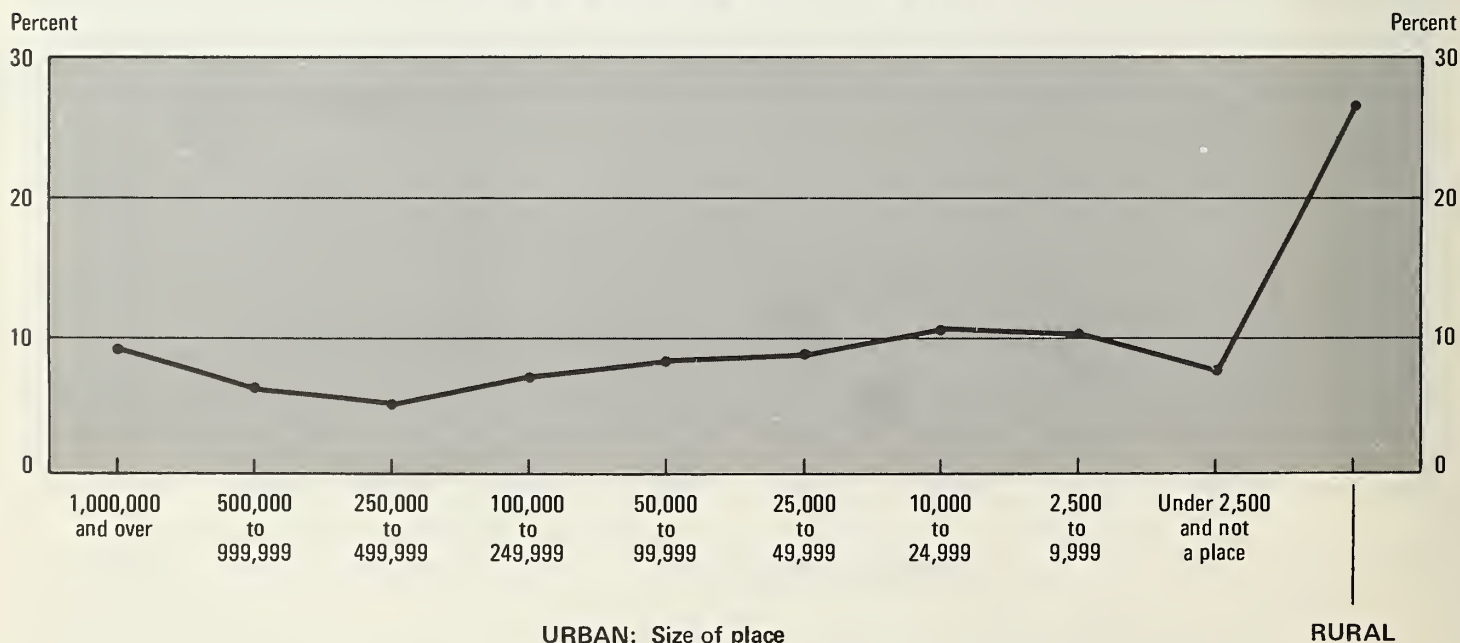


Table G. Estimated Space Missed Rates for Occupied Housing Units, by Region

(Data shown as estimated numbers of missed units per 100 enumerated units. Error rates reflect space missed occupied units only. Unless specifically labeled "after processing," data based on field enumeration coverage only. Detail may not add to totals due to rounding)

Category	Total United States				Region									
	Space missed rate		Standard error of rate		Northeast		North Central		South				West	
	Be- fore proc- ess- ing	After proc- ess- ing	Be- fore proc- ess- ing	After proc- ess- ing	Space missed rate	Stand- ard error of rate	Space missed rate	Stand- ard error of rate	Space missed rate		Standard error of rate		Space missed rate	Stand- ard error of rate
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	Be- fore proc- ess- ing	After proc- ess- ing	Be- fore proc- ess- ing	After proc- ess- ing	(14)	(15)
1970 Census														
A. Total missed occupied units....	1.7	1.4	0.2	0.2	1.8	0.4	0.8	0.2	2.6	1.7	0.4	0.3	1.6	0.2
1. Missed occupied units in enumerated addresses.....	0.4	(NA)	0.1	(NA)	0.6	0.2	0.4	0.2	0.4	(NA)	0.1	(NA)	0.2	0.1
2. Missed occupied units in missed addresses.....	1.3	(NA)	0.1	(NA)	1.2	0.3	0.4	0.1	2.3	(NA)	0.3	(NA)	1.4	0.2
1960 Census														
A. Total missed occupied units....	2.1	(¹)	0.1		2.0	0.2	1.8	0.2	2.8	(¹)	0.2		2.0	0.3
1. Missed occupied units in enumerated addresses.....	0.8		0.1		1.2	0.2	0.8	0.1	0.7		0.1		0.7	0.2
2. Missed occupied units in missed addresses.....	1.3		0.1		0.8	0.2	1.0	0.2	2.1		0.2		1.3	0.2

NA Not available.

¹The 1960 Census processing made virtually no change in the housing count.

Source: 1970 estimates from CPS-Census Match, table 5. 1960 estimates from unpublished material on the 1960 Census Evaluation Program.

a. The Estimated Gross Missed Rate for Vacant Units in 1970 Was About the Same as in 1960 (table H).

The proportion of vacant units that were missed in the total United States was estimated by only one study—the CPS-Census Match. The data indicate that 12.1 percent of the vacant units were missed during the field enumeration, but that the imputations that were made during processing reduced the rate to 11.8 percent. Taking into account the standard errors on the estimates, the CPS-Census Match provided no evidence of difference between 1970 and 1960 in the coverage of vacant units, neither before nor after the imputations were made in 1970.

While the estimates of total missed vacant units were probably subject to some bias in properly determining if some structures should have been included in the census (for example, whether some units were vacant rather than abandoned and whether or not some newly constructed units actually existed at the time of the census), the bias generally relates to entire structures. Thus, the estimates of missed units within enumerated addresses may be fairly reliable coverage estimates for vacant housing. For that component of missed vacant units, the 1970 missed rate is suggestive of coverage improvements over 1960, although the difference between the estimates is within sampling variability at the 95 percent level of confidence.

Table H. Comparison of 1970 and 1960 Estimated Gross Missed Rates for Vacant Units

(Data shown as estimated numbers of missed units per 100 enumerated units. Details may not add to totals due to rounding)

Census	Category	Missed rate for total United States		Standard error of rate	
		Be-fore proc-ess-ing	After proc-ess-ing	Be-fore proc-ess-ing	After proc-ess-ing
(1)	(2)	(3)	(4)	(5)	(6)
1970..	A. Total missed vacant units...	12.1	11.8	1.4	1.4
	1. Missed vacant units in enumerated addresses.....	2.0	(NA)	0.5	(NA)
	2. Missed vacant units in missed addresses....	10.1	(NA)	1.2	(NA)
1960..	B. Total missed vacant units...	11.7		0.8	
	1. Missed vacant units in enumerated addresses.....	3.8	(¹)	0.8	(¹)
	2. Missed vacant units in missed addresses....	8.0		0.7	

NA Not available.

¹The 1960 processing made virtually no change in the field counts of housing units.

Source: 1970 estimates from CPS-Census Match, table 1. 1960 estimates from unpublished material on the 1960 Census Evaluation Program.

b. The Coverage of Vacant Units May Have Been Better in Mail Areas Than in Conventional Areas (table I).

The CPS-Census Match provided separate estimates of the coverage of vacant units in mail areas and in conventional areas. In addition, for both the CPS-Census Match and the mail area study, separate coverage estimates were also made for the mailing lists that were derived from commercial address registers (the TAR ED's) and for the census prelisted ED's. Overall, for vacant units the two studies seem to indicate the same trend that was observed for occupied units, i.e., that the coverage was probably better in mail areas than in conventional areas and was better in TAR ED's than in Prelist ED's.

These indications are not without limitations however. The estimates that were observed for mail areas from the two studies are quite different, and although those differences are not significant at the 95 percent confidence level, it is not at all clear what the actual missed rate is. In the mail area study it

was sometimes found that for buildings which were under construction, the census had tended to count the occupied units but to omit the vacants. It was reported to the evaluation enumerators that the vacant units were available for occupancy at the time of the census, but such information is questionable when given a year or more after the census. Such problems usually did not happen in the CPS-Census Match because the CPS enumerators visited the structures month after month and knew whether or not new housing existed at the time of the census. Risks of this kind are inherent in the mail study estimates, and the clustering effects of finding multiple missed vacant units within certain structures are reflected in the large sampling errors on those estimates.

For both studies it is also possible that the data are not indicating levels of undercount but merely differing determinations as to which vacant units existed at the time of the census and also, perhaps, differences in the matching difficulties. For example, the vacant units in TAR ED's are primarily located in large cities and probably had better quality addresses which made it easier to find them in the census records.

In summary, we believe that both sets of estimates are biased. The CPS estimates may be too low because 20 percent of the sample vacants could not be evaluated, that is, there was no determination whether they were in or out of the census. Moreover, there may be a correlated coverage bias between the CPS and census, as described earlier for occupied units. On the other hand, the mail study estimates may be too high. The brief visits which those evaluation enumerators made to their units did not afford them the same familiarity with the structures that was possessed by the CPS enumerators. It is likely, therefore, that the mail study enumerators listed some units that were not residences at the time of the census. The findings seem to verify what had been indicated by the census pretests—that housing coverage improvements would accrue mainly from the postal review of the mailing lists, but when no mail is delivered to vacant units, the postman may not be alert to deficiencies in the census lists for vacant housing.

4. DEFINITIONAL ERRORS IN THE HOUSING COUNT

There were several goals of the study of definitional housing unit coverage errors in the census. Specifically, the study (1) provides an estimate of the overall magnitude of the definitional error in the 1970 Census, i.e., net and total error rates and the component underenumeration and overenumeration rates, (2) provides estimates of the mail area and conventional area components of the definitional error, (3) examines the effect of the "nonrelative" edit rule in reducing the definitional underenumerations in mail areas (this edit rule identified questionnaires with two or more nonrelatives and required that the housing unit definition be applied in a followup interview), and (4) measures the impact of definitional error on the count of housing units reporting the lack of some or all plumbing facilities and the count of one-person households.

A sample of about 64,000 units in conventional census areas and 130,000 units in mail census areas was selected. The questionnaires for these units were reviewed to identify those which exhibited a potential for error, i.e., questionnaires which included as household members persons not related to the head or relatives other than the spouse and children of the head, or questionnaires which reported that the living quarters lacked direct access and/or complete kitchen facilities. Field reinterviews were conducted for a subsample of potential error cases to identify those households for which definitional errors in enumeration had been made.

Table I. Estimated Total Missed Rates for Vacant Units in 1970, by Listing Procedure

(Data shown as estimated numbers of missed units per 100 enumerated units. Unless specifically labeled "after processing," data reflect field enumeration coverage only. Detail may not add to totals due to rounding. In addition to the standard errors given, the estimated rates are also subject to biases due to difficulty in matching and in properly determining what vacant housing should have been included in the census)

Source of estimate	Category	Total United States				Mail areas						Conventional areas			
		Missed rate		Standard error of rate		Total		TAR		Prelist		Missed rate		Standard error of rate	
		Be-fore proc-ess-ing	After proc-ess-ing	Be-fore proc-ess-ing	After proc-ess-ing	Mis-sed rate	Stand-ard error of rate	Mis-sed rate	Stand-ard error of rate	Mis-sed rate	Stand-ard error of rate	Be-fore proc-ess-ing	After proc-ess-ing	Be-fore proc-ess-ing	After proc-ess-ing
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1970 CPS-Census Match (table 1)	A. Total missed vacant units.....	12.1	11.8	1.4	1.4	8.8	2.4	6.5	1.4	16.1	8.8	14.8	14.3	1.6	1.6
	1. Missed vacant units in enumerated addresses..	2.0	(NA)	0.5	(NA)	2.3	1.0	2.6	0.9	1.5	2.9	1.7	(NA)	0.3	(NA)
	2. Missed vacant units in missed addresses..	10.1	(NA)	1.2	(NA)	6.4	1.7	3.9	1.0	14.6	6.0	13.1	(NA)	1.6	(NA)
	B. Total missed vacant units.....					19.2	4.9	16.0	5.7	27.1	8.3				
1970 Coverage Evaluation in Mail Areas (table 6)	1. Missed vacant units in enumerated addresses..	(This study confined to mail areas only.)				9.4	4.5	10.9	5.6	3.8	1.3	(This study confined to mail areas only.)			
	2. Missed vacant units in missed addresses..					9.8	2.1	5.1	0.7	23.3	8.2				

NA Not available.

a. The Total Error Due to the Misapplication of the Housing Unit Definition in 1970 is About the Same as in 1960 (table J).

In 1970, the definitional underenumeration rate was 0.3 of 1 percent and the overenumeration rate was 0.04 of 1 percent for a total error rate of 0.34 of 1 percent. In 1960, the estimated underenumeration and overenumeration rates were, respectively, 0.27 and 0.23 of 1 percent for a total error rate of approximately 0.5 of 1 percent. The estimated difference between 1960 and 1970 could have occurred by chance due to sampling error (at the 95 percent confidence level).

b. The Misapplication of the Housing Unit Definition in 1970 Caused a Small Net Undercount of Occupied Housing Units. Although the Net Error Rate in 1970 is Greater Than it Was in 1960; it is Still Very Small (table J).

In 1970, the net undercount of occupied housing units caused by definitional error is estimated to be about one-fourth of 1 percent. In 1960, the net error rate was very nearly zero. Taking into account sampling error, the 1970 net error rate is probably larger than in 1960 but is still sufficiently small to be relatively unimportant. The 1970 definitional undercount, accounts for about one-seventh of the missed occupied units in 1970.

Table J. Definitional Error Rates for the 1970 and 1960 Censuses

(Data shown as number of errors per 100 enumerated occupied housing units)

Error rate category (1)	1970		1960	
	Estimated error rate (2)	Standard error of rate (3)	Estimated error rate (4)	Standard error of rate (5)
Underenumerated.	0.30	0.08	0.27	0.10
Overenumerated..	0.04	¹ 0.02	0.23	0.10
Total error.....	0.34	0.09	0.50	0.14
Net error..... (minus sign indicates net undercount)	-0.26	0.09	-0.04	0.14

¹This standard error is not symmetric about the error rate. The standard error was calculated using a Poisson distribution and the actual range is 0.02 to 0.10.

Source: 1970 estimates from definitional error study. 1960 estimates from unpublished material on the 1960 Census Evaluation Program.

c. The Net Definitional Undercount in the Mail Area Was Greater Than in Conventional Areas (table K).

Mail areas had an estimated net definitional undercount of about 0.37 of 1 percent. In conventional areas the net undercount is estimated to be 0.07 of 1 percent. The difference between these two rates is greater than might occur by chance due to sampling (at the 95 percent confidence level), and the difference was primarily a result of more

underenumerations in mail areas—the overenumeration rates were practically the same for the two census areas. It must be recognized, however, that the areas enumerated by mail are dissimilar to those areas enumerated conventionally. Consequently, the difference in the net error rates is not necessarily attributable to a difference in enumeration techniques; it may instead reflect differences in demographic characteristics between the two areas.

d. The Nonrelative Edit Rule May Have Helped to Reduce the Number of Definitional Underenumerations, but the Extent of This Effect is Not Known (table L).

Prior to the 1970 Census, the mail census technique was pretested in the cities of Louisville, Cleveland, and New Haven. Housing unit coverage studies of those pretests provided an estimated average definitional underenumeration rate of 0.9 of 1 percent. Further examination revealed that about 85 percent to 90 percent of the errors occurred among households which had reported two or more nonrelatives as members of the household. As a result of those findings, the nonrelative edit rule, which required enumerator visits to households with two or more nonrelatives, was instituted as a census procedure in mail areas in 1970. In 1970, the definitional underenumeration rate was approximately 0.4 of 1 percent and the proportion of definitional underenumerations associated with questionnaires with two or more nonrelatives was about 50 percent. These data suggest that the nonrelative edit rule may have been effective in keeping the number of definitional underenumerations low. Note, however, that the evidence cited above is not conclusive proof of the edit rule's effectiveness. It is not known, for example, that 85 to 90 percent of the definitional underenumerations for the entire mail area would have been associated with the households that reported two or more nonrelatives. Such errors may have been peculiar only to cities of the types that were pretested. Our examination of the sample cases did show, on the other hand, that the nonrelative edit rule was not always applied correctly when it should have been. Had the rule been applied in all cases, the definitional missed rate could have been as low as 0.2 of 1 percent, which is essentially what was predicted by the use of such a rule.

Table K. Definitional Error Rates for the 1970 Census

(Data shown as number of errors per 100 enumerated occupied housing units)

Error rate category (1)	National (2)	Standard error of rate (3)	Mail (4)	Standard error of rate (5)	Conventional (6)	Standard error of rate (7)
Underenumerated.....	0.30	0.08	0.40	0.11	0.13	0.06
Overenumerated.....	0.04	¹ 0.02	0.03	¹ 0.02	0.05	¹ 0.04
Total error.....	0.34	0.09	0.43	0.11	0.18	¹ 0.07
Net error..... (minus sign indicates net undercount)	-0.26	0.09	-0.37	0.11	-0.07	¹ 0.07

¹These standard errors are not symmetric about the error rates. The standard errors were calculated using a Poisson distribution and the actual ranges are 0.02 to 0.10 (national overenumerated), 0.01 to 0.06 (mail overenumerated), 0.01 to 0.20 (conventional overenumerated), 0.11 to 0.34 (conventional total), and -0.14 to 0.09 (conventional net).

Source: 1970 definitional error study.

Table L. Comparison of Definitional Error Rates for Mail Areas in 1970 and Three Mail Pretest Cities

(Data shown as number of errors per 100 enumerated occupied housing units)

Error rate category	1970 Census mail area	Average for three mail pre-tests	New Haven (1967)	Cleveland (1965)	Louisville (1964)
(1)	(2)	(3)	(4)	(5)	(6)
Underenumerated..	0.40	0.9	1.3	0.9	0.7
Overenumerated....	0.03	0.1	0.2	0.2	0.1
Total error.....	0.43	1.0	1.5	1.1	0.8
Net error..... (minus sign indicates net undercount)	-0.37	-0.8	-1.1	-0.7	-0.6

Source: 1970 definitional error study. Estimates for pretest cities from unpublished Pretest Evaluation Reports.

Table M. Impact of Definitional Errors on 1970 Census Count of One-Person Households and Households Reported Sharing of Plumbing Facilities

Error rate category	Number	Errors per 100 enumerated households	Standard error of rate
(1)	(2)	(3)	(4)
Total 1-person households—			
1. enumerated.....	11,136,804	-	-
2. misclassified by being included as part of larger households.....	180,000	1.6	0.3
Total households lacking plumbing facilities—			
1. enumerated.....	4,677,526	-	-
2. misclassified by being included as part of households with plumbing facilities.....	103,000	2.2	0.4

- Represents zero.

Source: 1970 definitional error study.

e. Because the Definitional Error is Concentrated in Certain Kinds of Housing, it May Have a Nontrivial Impact on Certain Housing Statistics (table M).

(1) One-person households

The occurrence of definitional errors is estimated to have caused a net **undercount** of one-person households of

approximately 1.6 percent. If sampling variability is considered, the undercount could range as high as 2.2 percent.

(2) Households lacking some or all plumbing

The occurrence of definitional errors is estimated to have caused a net **undercount** of roughly 2.2 percent of all units reporting the lack of some or all plumbing. This occurred especially in units which share plumbing facilities with other households. The undercount could be as great as 3 percent if sampling variability is considered.

5. THE EFFECT OF OCCUPANCY CLASSIFICATION ERRORS ON THE CENSUS COUNTS OF OCCUPIED AND VACANT HOUSING

In principal, a census attempts to enumerate population and housing as they exist on a given day (for the 1970 decennial census this was April 1). In practice, this goal cannot be achieved. While the occupancy status for the majority of units is established as of April 1, especially in mail census areas where almost 90 percent of households complete and return their questionnaires around April 1, followup enumeration of remaining units is spread out over a period of several weeks. During that followup period, moves occurring among the population mitigate against enumerating the population as it was distributed on April 1. (Theoretically, this problem may be more acute in conventional census areas than in mail areas.) To partially overcome these problems, households are enumerated during the followup wherever they are found, unless they inform the enumerator that they have been enumerated elsewhere. The net effect of these procedures is to undercount population. For example, a household moving from an unenumerated housing unit to a unit which has already been enumerated has no chance of being counted by regular census procedures. A household moving from one unenumerated unit to another unenumerated unit would be counted at the second unit. A household moving from an enumerated unit to an unenumerated unit would usually not be enumerated at the second unit. Clearly, the first situation is predominant among moving households with a net loss in population coverage. As a part of the evaluation program, plans were made to check for misclassifications in the census and to study the problem as a part of the overall coverage evaluation of the mail census.

In the evaluation study the occupancy status for a sample of units was determined as of April 1. The census enumerations for those units were then checked to estimate the gross and net deviations in occupancy status from the April 1 standard. For purposes of study, the observed misclassified units were further divided into "procedural" and "enumerator" error. Conceptually, if a move had occurred for the unit between April 1 and the actual date of enumeration, a resulting misclassified unit would be categorized as a procedural error. If no move had occurred in the followup period but the unit was erroneously enumerated as occupied or vacant, the resulting misclassified unit would be categorized as an enumerator error. In practice, we could not always determine the exact date of enumeration nor the exact date of when a move had occurred. Thus, we adopted a rule for categorization of errors which tends to understate enumerator error and to overstate procedural error. That is, if a move occurred for a unit **anytime** during the entire field enumeration period (April through July 1970), the resulting misclassification would be categorized as procedural. A misclassification would be categorized as enumerator, only when no move had occurred for the unit during the entire followup enumeration period. The evaluation estimates reported here are subject to a potential error in estimation which would tend to slightly understate the levels of estimated errors.

There is one important difference between the estimates of misclassification errors reported here and the errors in the census as it was finally tabulated and published. The estimates of errors reported here reflect errors in field enumeration of housing units but do not reflect corrections or adjustments for those errors made during later processing. Prior to the decennial census, it was recognized that the field enumerations would be subject to misclassification errors and a special census program, the National Vacancy Recheck,⁴ was set up to adjust individual census records, during processing, to compensate for those errors. In that program, a recheck was conducted for a sample of units initially enumerated as vacant, and approximately 380,000 of nonseasonal vacant units were then changed to occupied units during processing. The adjustment rates used were believed to

compensate for the net effect of misclassified units, however, one of the purposes of the evaluation study to check for misclassification errors was to provide a basis for evaluating the validity of the adjustments made in the National Vacancy Recheck Program.

The net effect of misclassifications and other measurable coverage error on the final census housing counts is summarized at the end of this chapter, but some causes and components of the error are described below.

a. A Small Proportion of All Units Enumerated in 1970 Census Mail Areas Were Misclassified on Occupancy Status (table N).

Among the total enumerated units in the 1970 field enumeration, 0.9 of 1 percent were improperly enumerated as vacant and 0.3 of 1 percent were improperly classified as occupied, for a gross or total error estimated to be 1.1 percent.

⁴The recheck is described in PHC(E)-6 and the findings are discussed under "The National Vacancy Recheck."

Table N. Estimated Effect of Incorrect Classification of Occupancy Status on the Total Housing Unit Count in Mail Census Areas, by Cause of Error, Census Listing Procedure, and Region (E6)

(Data shown as estimated number of misclassifications per 100 enumerated housing units. Errors reflect field enumeration results only and do not reflect improvements made during processing. Noninterviews on occupancy status in this study amounting to about 2 percent of all sample occupied units and 15 percent of all sample vacant units have been tabulated here as correctly classified in the census. Detail may not add to totals due to rounding)

Category	Total mail		TAR		Prelist		Northeast		North Central		South		West	
	Error rate	Stand-ard error of rate	Error rate	Stand-ard error of rate	Error rate	Stand-ard error of rate	Error rate	Stand-ard error of rate	Error rate	Stand-ard error of rate	Error rate	Stand-ard error of rate	Error rate	Stand-ard error of rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Occupied units misclassified as vacant, total.....	0.9	0.1	1.0	0.1	0.4	0.1	0.7	0.1	0.7	0.1	1.5	0.3	0.7	0.1
- procedural error.	0.3	(NA)	0.3	(NA)	0.1	(NA)	0.1	(NA)	0.3	(NA)	0.6	(NA)	0.2	(NA)
- enumerator error.	0.6	(NA)	0.6	(NA)	0.3	(NA)	0.6	(NA)	0.4	(NA)	0.9	(NA)	0.5	(NA)
Vacant units misclassified as occupied, total.....	0.3	0.1	0.3	0.1	0.4	0.1	0.3	0.1	0.3	0.1	0.3	0.1	0.3	0.1
- procedural error.	0.2	(NA)	0.2	(NA)	0.3	(NA)	0.2	(NA)	0.2	(NA)	0.2	(NA)	0.3	(NA)
- enumerator error.	0.1	(NA)	(¹)	(NA)	0.1	(NA)	0.1	(NA)	0.1	(NA)	0.1	(NA)	(¹)	(NA)
Gross misclassification.....	1.1	0.1	1.2	0.1	0.8	0.1	1.0	0.1	1.0	0.1	1.8	0.3	1.0	0.1
- procedural error.	0.5	(NA)	0.6	(NA)	0.4	(NA)	0.4	(NA)	0.5	(NA)	0.8	(NA)	0.5	(NA)
- enumerator error.	0.6	(NA)	0.7	(NA)	0.3	(NA)	0.6	(NA)	0.5	(NA)	1.0	(NA)	0.5	(NA)
Estimated field count of total housing units.....	41,935,248		33,764,237		8,171,011		13,836,558		12,007,776		8,561,240		7,529,674	

NA Not available.

¹Error rate rounds to zero.

b. The Net Effect of Incorrectly Classifying Occupancy Status in the 1970 Mail Census Was to Initially Undercount Occupied Housing Units (tables O and P). The National Vacancy Recheck Corrected Most of This Error.

Approximately 16.5 percent of all units initially enumerated as vacant should have been enumerated as occupied, and about 0.3 of 1 percent of all units initially enumerated as occupied should have been enumerated as vacant. This resulted in about three times as many occupied units misclassified as vacant as there were vacant units misclassified as occupied. The net effect of those misclassifications was to initially undercount occupied housing units by 0.6 of 1 percent. Conversely, the field count of vacant units was overstated by about 11 percent.

The net effect of occupancy misclassification resulted in about 262,000 units being improperly classified as vacant. The National Vacancy Recheck detected the major proportion of these errors, however, and approximately 250,000 units in

mail areas were changed to occupied units during the census processing. Thus, the final census count of vacant units contained an excess of about 12,000 units, or was about 0.6 of 1 percent too high. The effect of this amount of residual error on the occupied count was trivial.

c. The Procedural Errors in Misclassifying Units Were Nearly Compensating, Whereas the Enumerator Errors Were Not (tables O and P).

Among the units that should have been enumerated as occupied, 0.3 of 1 percent were misclassified as vacant because of procedural error. This amount of error was almost compensated for, however, by an estimated 0.2 of 1 percent of the enumerated occupied units that were actually vacant on census day. Thus, the net procedural error for occupied units was an estimated 0.1 of 1 percent understatement (see column 2 of table O). The net effect of the enumerator-caused errors on occupied units was estimated to be five times as great (0.5 of 1 percent) as the effect of procedural errors.

Table O. Estimated Effect of Incorrect Classification of Occupancy Status on the Occupied Housing Unit Count in Mail Census Areas, by Cause of Error, Census Listing Procedure, and Region (E6)

(Data shown as estimated number of misclassifications per 100 enumerated occupied housing units. Errors reflect field enumeration results only and do not reflect improvements made during processing. Noninterviews on occupancy status in this study amounting to about 2 percent of all sample occupied units and 15 percent of all sample vacant units have been tabulated here as correctly classified in the census. Detail may not add to totals due to rounding)

Category	Total mail		TAR		Prelist		Northeast		North Central		South		West	
	Error rate	Stand- ard error of rate	Error rate	Stand- ard error of rate	Error rate	Stand- ard error of rate	Error rate	Stand- ard error of rate	Error rate	Stand- ard error of rate	Error rate	Stand- ard error of rate	Error rate	Stand- ard error of rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Occupied units misclassified as vacant, total.....	0.9	0.1	1.0	0.1	0.4	0.1	0.7	0.1	0.7	0.1	1.6	0.3	0.7	0.1
- procedural error	0.3	(NA)	0.4	(NA)	0.1	(NA)	0.1	(NA)	0.3	(NA)	0.7	(NA)	0.3	(NA)
- enumerator error	0.6	(NA)	0.7	(NA)	0.3	(NA)	0.6	(NA)	0.4	(NA)	1.0	(NA)	0.5	(NA)
Vacant units misclassified as occupied, total.....	0.3	0.1	0.3	0.1	0.4	0.1	0.3	0.1	0.3	0.1	0.3	0.1	0.3	0.1
- procedural error	0.2	(NA)	0.2	(NA)	0.3	(NA)	0.3	(NA)	0.3	(NA)	0.2	(NA)	0.3	(NA)
- enumerator error	0.1	(NA)	0.1	(NA)	0.1	(NA)	0.1	(NA)	0.1	(NA)	0.1	(NA)	(¹)	(NA)
Net misclassification ²	-0.6	0.1	-0.7	0.1	(¹)	0.1	-0.4	0.1	-0.4	0.2	-1.3	0.3	-0.5	0.2
- procedural error	-0.1	(NA)	-0.1	(NA)	0.2	(NA)	0.1	(NA)	-0.1	(NA)	-0.5	(NA)	(¹)	(NA)
- enumerator error	-0.5	(NA)	-0.6	(NA)	-0.2	(NA)	-0.5	(NA)	-0.4	(NA)	-0.9	(NA)	-0.5	(NA)
Estimated field counts of occupied housing units ³	39,550,971		32,107,681		7,443,290		13,050,756		11,376,694		7,980,477		7,143,044	

NA Not available.

¹Error rate rounds to zero.

²Minus sign indicates deficiency in occupied housing unit count.

³These field counts by occupancy status were estimated from the final census counts by using the TAR area conversion rate from the National Vacancy Recheck Program.

Table P. Estimated Effect of Incorrect Classification of Occupancy Status on the Vacant Housing Unit Count in Mail Census Areas, by Cause of Error, Census Listing Procedure, and Region (E6)

(Data shown as estimated number of misclassifications per 100 enumerated vacant housing units. Errors reflect field enumeration results only and do not reflect improvements made during processing. Noninterviews on occupancy status in this study amounting to about 2 percent of all sample occupied units and 15 percent of all sample vacant units have been tabulated here as correctly classified in the census. Detail may not add to totals due to rounding)

Category (1)	Total mail		TAR		Prelist		Northeast		North Central		South		West	
	Error rate (2)	Stand- ard error of rate (3)	Error rate (4)	Stand- ard error of rate (5)	Error rate (6)	Stand- ard error of rate (7)	Error rate (8)	Stand- ard error of rate (9)	Error rate (10)	Stand- ard error of rate (11)	Error rate (12)	Stand- ard error of rate (13)	Error rate (14)	Stand- ard error of rate (15)
Occupied units misclassified as vacant, total.....	16.5	1.3	19.3	1.6	6.0	1.4	15.0	2.4	13.7	2.4	21.0	2.5	16.7	2.8
- procedural error	5.8	(NA)	6.8	(NA)	1.8	(NA)	3.0	(NA)	5.8	(NA)	8.6	(NA)	5.9	(NA)
- enumerator error	10.7	(NA)	12.5	(NA)	4.2	(NA)	12.0	(NA)	7.9	(NA)	12.4	(NA)	10.8	(NA)
Vacant units misclassified as occupied, total.....	5.5	0.8	5.4	0.9	6.1	1.6	6.4	1.5	5.9	1.8	3.7	1.1	6.3	2.0
- procedural error	4.6	(NA)	4.4	(NA)	5.1	(NA)	5.2	(NA)	4.8	(NA)	2.6	(NA)	6.3	(NA)
- enumerator error	1.0	(NA)	1.0	(NA)	1.0	(NA)	1.2	(NA)	1.1	(NA)	1.1	(NA)	(¹)	(NA)
Net misclassification ²	11.0	1.4	13.9	1.7	(¹)	2.1	8.6	2.7	7.8	2.7	17.3	2.6	10.5	3.4
- procedural error	1.2	(NA)	2.4	(NA)	-3.3	(NA)	-2.2	(NA)	1.0	(NA)	6.0	(NA)	-0.3	(NA)
- enumerator error	9.8	(NA)	11.5	(NA)	3.3	(NA)	10.8	(NA)	6.8	(NA)	11.3	(NA)	10.8	(NA)
Estimated field counts of vacant housing units ³	2,384,277		1,656,556		727,721		785,802		631,082		580,763		386,630	

NA Not available. ¹Error rate rounds to zero. ²Minus sign indicates deficiency in vacant housing unit count. ³These field counts by occupancy status were estimated from the final census counts by using the TAR area conversion rate from the National Vacancy Recheck Program.

The distribution of procedural versus enumerator error is, of course, also shown in table P, where the errors are expressed as proportions of enumerated vacant units. Here, it is worth noting that the National Vacancy Recheck, which was mentioned earlier, corrected most of the enumerator-caused errors (the noncompensating component of misclassification errors). In other words the original count of vacant units (2,384,277) contained an excess of about 262,000 of which about 250,000 were removed by the National Vacancy Recheck.

d. Most of the Vacant Units That Were Enumerated as Occupied Were Procedural Errors, Whereas Most Occupied Units Misclassified as Vacant Were Caused by Enumerator Error (tables O and P).

Of the approximately 5.5 percent of vacant units misclassified as occupied, about five-sixths of the errors were caused by the census procedure. Of the 0.9 of 1 percent of occupied units that should have been enumerated as vacant, approximately two-thirds were caused by enumerator error.

The large proportion of procedural errors among vacant units misclassified as occupied can be reasonably explained by the de facto procedure used in followup enumeration. A unit vacant on census day but subsequently occupied would ordinarily have been enumerated as occupied by the census followup enumerator since the enumerator was instructed not to inquire about the census day occupants but rather to enumerate the current residents. There is, however, no such reasonable explanation for the majority of the "occupied enumerated as vacant" misclassifications being attributable to enumerator error. It can only be speculated that these units were difficult to enumerate, e.g., no one was usually at home or the household was uncooperative.

e. The Proportion of Occupied Units Enumerated as Vacant is Greater in Multiunit Structures Than in Single-Unit Structures (table Q).

The "occupied-enumerated as vacant" misclassification rate is approximately 11 percent of the vacant units in single-unit structures. In multiunit structures the error rate is approximately twice as great. The difference between the rates for single units versus multiunits is greater than could be due to sampling variability at the 95 percent confidence level.

Table Q. Occupied Units Misclassified as Vacant by Structure Size in Mail Census Areas—Error Rates (E6)

(Detail may not add to totals due to rounding)

Category	Total	Standard error of rate	Size of structure (units enumerated in census)			
			1	Standard error of rate	2 or more	Standard error of rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Percent of vacant units initially enumerated as vacant.....	100.0	-	100.0	-	100.0	-
Percent actually occupied, but misclassified as vacant.....	16.5	1.3	11.1	1.6	21.6	2.0

- Represents zero.

6. CHARACTERISTICS OF MISSED UNITS

In addition to providing guidance to users on the accuracy of census data, the evaluation results were also reviewed for their implications on coverage improvements in future censuses. The mail area evaluation sample data were studied to see whether the coverage errors were correlated with independent variables that might be used to predict or identify cases where coverage errors were likely to occur.

The estimates of how coverage errors correlate with independent variables are less reliable than the estimated levels of error discussed elsewhere in this report. Some of the differences discussed, for example, could have occurred by chance due to sampling variability. Thus, the findings discussed here are only suggestive of how coverage errors are distributed, that is, they offer hypotheses about the distributions of coverage error that may be worth while to investigate (in pretests, for example) but do not provide definitive evidence on how coverage errors distribute. Nevertheless, it seems that these data should be documented here. These indications, when coupled with coverage data from other sources such as special studies and pretests, might reveal a definite correlation between coverage errors and independent variables.

a. Structure Size

About one-half of the observed within structure missed units occurred in addresses listed as single-unit in the address registers. However, about two-thirds of all units were in single-unit structures, yielding a lower-than-average estimated missed rate among single-unit addresses. On the other hand, a high concentration of missed units was observed in structures with 2 to 4 units. While units in such structures make up only about one-sixth of all enumerated units, about one-third of all missed units were located in 2 to 4 unit structures, resulting in a missed unit rate for these structure sizes twice larger than the mail area average. These differences among structure size were not beyond sampling error at the 95 percent level of confidence.

b. Year Built

About two-thirds of the observed missed units (and about three fourths of the occupied missed units) within partially

enumerated structures were located in structures built in 1939, or earlier. Only about one-third of the enumerated units were in the older structures. This error rate among older structures—about twice higher than the average missed rate—is beyond sampling error at the 95 percent level of confidence from the missed rate among buildings built in 1940, or later.

c. Missed Structures

As a result of pretests carried out during the 1960-70 decade on mail census procedures we had anticipated a large decrease from the 1960 experience in the incidence of missed units in missed structures. Post office checks of the completeness of the mailing list had reduced the missed structure rate in the pretests from the 1960 level to a relatively small residual error rate. Our 1970 mail census evaluation did not show that a large drop had occurred in the incidence of missed units in missed structures, except perhaps in the cities of 1 million or more population.

The 1970 rate of missed units in missed structures (0.7 of 1 percent for occupied units; 1.2 percent for total units—see table 6) was approximately the same (and clearly within sampling error) as the 1960 rate (0.8 of 1 percent for occupied units; 1.2 percent for total units—rates for urbanized areas in 1960 were taken as comparable to 1970 mail census rates). These findings, in comparison to pretest experiences, indicate that all the potential gains to be made through the post office checking of the mailing list were not fully realized in the 1970 mail census. This is further borne out by a review of the sample results in mail census areas. Among the missed structures identified in the 8,000 city blocks relisted in the mail area study, we observed 8 which had 30 or more units each. While these observed errors made only a relatively trivial contribution to the total missed rate, the fact that they occurred at all is disturbing. These structures were in blocks where other enumerated structures were located. In general, most of the units within the missed structures were occupied at the time of the census. With the double, and sometimes triple, checks made by the post office on the completeness of the mailing list, it was not expected that such large buildings in residential areas would have been overlooked.

7. THE NET EFFECT OF ERRORS ON THE FINAL CENSUS HOUSING COUNT

Depending on individual motives, there are a number of reasons for evaluating the coverage of housing in the census. To the Bureau staff, the evaluation program provides needed information about the causes and components of coverage error so that improvements can be made in future censuses and surveys. Also, the results tell much about the accuracy of the census data, although little has been said here about processing or content errors. If the user of census data is primarily concerned with the accuracy, these findings do provide a general indication of the quality of the census count. Also, while these rates are not precise estimates of the bias component of the mean square error on census housing data, they may be regarded as fairly reliable. It is difficult to determine the net effect which the measured errors had on all the census housing counts but this has been done below for one category of housing. Here, a comparison is made of the final census count of occupied housing in mail census areas with a derived or "true" count. For simplicity, the numbers are rounded to the nearest thousand.

Reason for Adjustment	Adjusted Count of Occupied Housing in Mail Areas
a. Since the housing unit error rates given in this report relate to the census field count, that count should be used as the basis for deriving the "true" count. Unfortunately, the field count of occupied units in mail areas is not precisely known but can be estimated by adjusting the final census count of about 39,825,000 occupied units. This number includes about 274,000 units that were added to the occupied count during processing. About 250,000 of these were units that had been initially enumerated as vacant but which were converted to occupied units as a result of the followup interviews that were conducted during the National Vacancy Recheck. (Nationally, about 380,000 vacant units were converted to occupied but some were in conventional census areas.) The remaining 24,000 units were imputed in the census because of questionnaires that were received after processing had begun.	39,825,000 5 -274,000
Thus, the final census count of occupied units minus the occupied units that were added to the census during processing, gives the approximate number of units that were included in the field enumeration. This is the base for evaluation error rates inasmuch as all checks of undercounts and overcounts were made against field enumeration results.	39,551,000

b. The number of space missed occupied units in mail areas was estimated to be about 514,000. (See table 6, estimated occupied space missed rate of 1.3 percent applied to the above estimated field count.) This figure must be added to the field count.	+514,000 <u>40,065,000</u>
c. The number of space overenumerated occupied units in mail areas was estimated to be about 119,000 (0.3 of one percent estimate from table 6 applied as in previous adjustment). The field count must be reduced by this amount.	-119,000 <u>39,946,000</u>
d. The number of definitionally missed occupied units in mail areas was about 158,000. (See table K, estimated, definitional undercount of 0.4 of 1 percent applied to above field count.) These must be added to the field housing count.	+158,000 <u>40,104,000</u>
e. The number of definitionally overenumerated occupied units in mail areas was about 16,000. (See table K, estimated definitional undercount of 0.04 of 1 percent applied to above field count.) The field count must be reduced accordingly.	-16,000 <u>40,088,000</u>
f. An estimated 356,000 occupied units in mail areas were misclassified as vacant in the census. (See table O, 0.9 of 1 percent occupied units misclassified as vacant applied to above field count.) Although about 250,000 of these were converted to occupied units based on the National Vacancy Recheck, all 356,000 units should be added to the field count in order to derive a true occupied unit count.	+356,000 <u>40,444,000</u>
g. An estimated 119,000 vacant units in mail areas were misclassified as occupied in the census. (See table O, 0.3 of 1 percent vacant units misclassified as occupied applied to above field count.) The field count of occupied units must therefore be reduced.	-119,000 <u>40,325,000</u>

Using the evaluation program estimated error rates, then, the net effect of the errors on the final census count of occupied units in mail areas is:

$$\frac{\text{derived true count} - \text{final census count}}{\text{final census count}} = \frac{40,325,000 - 39,825,000}{39,825,000}$$

about 1.3 percent under count in the census.

While these adjustments do not take into account errors that may have been made during processing and which were not corrected by the checks and edits performed, such errors could have only a trivial effect on the field counts.

⁵ From PHC(E)-6.

Chapter II. The CPS-Census Match—Methodology and Limitations

A. Introduction

The Current Population Survey (CPS) is an ongoing nationwide survey conducted monthly by the Census Bureau, for the purpose of providing social and economic data. The March 1970 CPS sample of units was used as the basis for a record check to measure undercoverage of housing units in the 1970 Census.

Briefly, in this study, each March 1970 CPS unit (approximately 56,000) was allocated to a 1970 Census ED and was searched for in the appropriate ED register(s). Occupied units which could not be matched were subsequently visited for field reconciliation for the purpose of acquiring additional information which might facilitate locating the unit in the census. CPS vacant units which could not be matched were also sent to the field with special instructions whereby the CPS interviewers attempted to determine whether or not the units were listed in the census registers. The assumption was that by reconstructing the census enumerators path-of-travel from the census registers, the CPS interviewers could decide whether the CPS vacant units were listed in the census. After a review of the field work, each previously nonmatched unit was again searched for in the census and ultimately was classified as matched, missed, or noninterview.⁶

The use of the March CPS as a record check source had particular advantages. First, the CPS enabled us to produce estimates of missed units at a national level, as well as to obtain separate estimates of coverage error for those areas that were enumerated by mail in 1970 versus areas that were enumerated conventionally (by census enumerators).

Secondly, because of the proximity of the March interview period (March 15-21) to Census day (April 1), the March sample provided a highly reliable source to which the census could be compared. It was expected that most of the units which were enumerated during the March CPS would also exist at the time of the census enumeration. On the other hand, since the census data are accumulated over a period of several months and do not necessarily reflect conditions as of April 1970, we could expect a few differences due to changes over time. These differences were resolved through field reconciliation; however, the proximity of reference dates for CPS and census records minimized the number of cases requiring reconciliation.

It was also recognized that some limitations were inherent in the use of CPS records for evaluating census coverage. The CPS itself suffers from some amount of undercoverage, and correlated omissions could exist between the CPS and the census. Moreover, there are explicit population coverage differences between the two: the CPS is restricted to the civilian noninstitutional population while the census, of course, is not. Nevertheless, it was felt that the CPS could be used to provide useful estimates of census coverage error.

⁶ A noninterview for the matching attempt usually resulted from "poor" quality census listings for which it was not possible to determine whether or not the CPS unit was counted.

B. Methodology

1. BACKGROUND

In order to select the CPS sample,⁷ the United States was divided into 357 areas. These areas (called strata) were established by the following method. First, single counties or groups of contiguous counties (in some New England states parts of counties were used) were designated as primary sampling units (PSU's). Strata were then formed by grouping together PSU's with similar or homogeneous characteristics such as geographic region, population density, percent nonwhite, etc.

A total of 449 PSU's (at least one from each stratum) was selected from the 357 strata, and a sample of units was selected in each PSU in such a manner that each unit had the same overall probability of selection (except for a small proportion of sample units with special weights). Thus, national estimates could be obtained by weighting the sample totals by the reciprocal of the overall probability of selection. Essentially, the selection of a sample of units from the sample PSU's was accomplished as follows:

a. A sample of 1960 Census ED's within the PSU was selected and the listings in those ED's reviewed.

b. If the listings in the ED met certain address requirements, the ED was divided into groups of addresses called B Segments. A sample of the units included within the B Segments was then designated for interviewing. An intensive coverage check (the successor check) was initiated in order to detect units that were either missed in the 1960 Census or were converted to units subsequent to the census. That check, although not entirely successful, nevertheless tended to limit biases that might have occurred had the units been omitted.

c. If the listings in the ED did not meet the requirements, then the ED was divided into small land areas called area segments. A sample of the area segments was selected, and a complete and independent listing of the units in each segment was compiled. A sample of units to be interviewed was then selected from these listings.

d. To allow for the sampling of new construction, building permits (in permit issuing places) issued since the 1960 Census were sampled. Addresses selected in this manner made up what were called Permit B Segments.

⁷ For a more detailed description of the Current Population Survey, see Bureau of the Census Technical Paper No. 7, *The Current Population Survey: A Report on Methodology*.

Under the 449 PSU design, approximately 55,000-60,000 sample units were designated for interview each month. The March 1970 sample consisted of about 56,000 sample units; however, for a variety of reasons, CPS interviews were not obtained for a number of units in March 1970. In the CPS, these noninterviews were grouped into the following categories:

- (1) **Type A noninterviews**—units occupied by persons eligible for enumeration but for which no interview was conducted due to refusals, inability to find respondents at home after repeated visits, etc.;
- (2) **Type B noninterviews**—units which were found to be vacant at the time of the visit or which were occupied solely by persons ineligible for CPS enumeration, for example, military personnel; and
- (3) **Type C noninterviews**—units that were ineligible for the sample such as demolished units or units permanently converted to nonresidential use.

2. EVALUATION OPERATIONS

The CPS-Census Match study for estimating coverage errors was based on the March 1970 CPS units which were interviewed in the CPS or which were type A or type B noninterviews. Type C noninterviews were excluded from the evaluation.

Each unit was first allocated to a 1970 Census ED. The sample addresses were allocated to census ED's in one of two ways. For the large cities, the CPS addresses were allocated by use of Block Header Records (a modified version of the computer coding system that was used to code census addresses to ED). In other areas, the allocation to a 1970 ED was made by superimposing 1960 ED maps (from which the sample units had been selected) onto the 1970 ED maps. Occupied units which could not be found in the ED to which they were initially allocated were often returned for a second allocation; whenever new ED's were allocated, additional searches for the units were made. Less than 5 percent of the approximately 50,000 occupied units required allocation to a second ED. More than twice that number of vacant units required allocation to a second ED.

After ED allocation, census address registers for these ED's were obtained and each unit was searched for. Approximately 75 percent of the units were classified as matched at the end of this search. Of the 25 percent not matched, slightly less than half (11 percent of the total) were classed as possibly matched; i.e., the basic address (house number and street name) of the CPS unit was found in the census, but it could not be determined whether or not the census included the particular unit. [Only occupied units were possibly matched; the matching instructions for vacants allowed only for a match or a nonmatch.] The above figures do not include CPS units enumerated in special places. Such extreme difficulty was encountered in attempting to match those units to census records that it was finally decided to exclude them from evaluation. (For a more detailed analysis of this difficulty, see section C, Limitations of Data.)

Upon the completion of the address register search activities, the March CPS sample of addresses was divided into three groups:

- a. CPS sample units whose addresses were matched,
- b. CPS sample units whose addresses were possibly matched, and
- c. CPS sample units whose addresses could not be found in the register.

For the occupied CPS units that were matched in the census registers, the names of the CPS household members were compared with the household names on the census questionnaire. The comparison was limited to the matched units that were designated in the address registers to receive sample (long-form) questionnaires and was made for three purposes. The first was to see if any CPS household members had been omitted from the census schedule, and, if so, to examine the CPS data for possible clues as to the reasons for the census omissions. Secondly, the comparison provided a check on whether or not spurious matches had been made during the address register search. (Whenever a different (or vacant) household was found in the census, a search was made for the CPS household among all the census questionnaires that had been completed for the basic CPS address. If the persons were found on another schedule, the household comparison to estimate missed persons was done regardless of form type. Otherwise, the unit was reclassified as a nonmatch pending reconciliation.) Thirdly, some measure of response differences could be obtained by a comparison of the CPS and census responses to the identical questions that had been asked. (These data are presented in another report in this series.)

The possibly matched addresses were generally of the type where the basic street address was found, but the specific unit could not be matched. In these instances, all questionnaires intended for the basic address were searched. If the household was found on one of these schedules, the unit was coded as matched. In addition, the household comparison to estimate missed persons was conducted whenever the schedule was a long form. If the household name was not found on the census questionnaire, the unit was then coded as a nonmatch pending reconciliation.

At this stage of operations, no questionnaire search was required for the nonmatched addresses. For these units and for the group 1 and 2 cases which had been reclassified as not matched, or for which the household comparison revealed a potential census miss, reconciliation questionnaires (form D-831 or D-831A) were prepared.

It should be noted that both the register and questionnaire searches encompassed several months' time and that much of the work on these operations was done concurrently. To wait until the completion of these operations before sending the problem cases to the field would have been costly, not only in terms of the inordinate workload but also because of the increased time lag between the time of enumeration and reconciliation. Clearly, as this time interval increased, the probability of accurate respondent recall or even respondent availability decreased. Thus, the reconciliation for the CPS Census Match was conducted over three different periods—February, April and June 1971. The work was done by CPS interviewers in conjunction with their regular CPS assignments for those months. Most of the followup was done via personal visits, with a small proportion conducted by telephone.

Briefly, the reconciliation for housing unit coverage was intended to do the following. For occupied units which were not matched, the interviewer determined if the CPS address was correct, and whether or not the unit was identified by any other address. Additionally, if the basic street address had been found in the census (i.e., possibly matched from the register search), the reconciler was given a list of the units and households that had been enumerated at that address and was to determine whether any of those households actually matched the CPS unit. When the reconciliation materials were returned from the field, a review of the reconcilers' findings was made. Any additional search activities that were required (for new or corrected addresses) were conducted, and each unit was finally classified as matched, missed, or noninterview for the coverage study.

Particular concern was expressed regarding reconciliation of CPS rural vacants which had not been matched. For the most part, the failure to match these units was due to the lack of or inadequacy of their mailing addresses. As an example, consider a CPS address described as "general delivery" with no other identifying information given. In the census register, any number of units may also be described as "vacant, general delivery," but certainly there is no basis for saying that the CPS unit does or does not correspond to one of those listings. Since it was believed that the standard reconciliation procedure would probably yield little additional information for these units, a special reconciliation scheme was proposed whereby the CPS interviewers were provided with copies of the census address registers and maps and corresponding CPS segment listings and maps. By using their knowledge of the area and applying special instructions which utilized map information and the census enumerator's path of travel sequence, the CPS interviewers could hopefully determine whether a census miss had occurred. In many cases there were a number of census listings which might possibly have corresponded to the CPS vacant unit. The instructions to the enumerators contained rules specifying circumstances under which a particular census listing could be considered as that of the CPS unit in question, as well as rules under which a CPS unit would be declared missed in the census. As an example, if an enumerator knew that the CPS vacant unit was the only unit between two occupied units and found that the census had listed only one unit between these same occupied units, then that census listing would be matched to the CPS unit. Otherwise, the unit was not matched.

To test the feasibility of this procedure, a test sample of 135 units was included as part of the February 1971 workload. For approximately 70 percent of these vacants the enumerator was able to identify a definite match or a definite miss. Although no determination could be made on the remaining 30 percent, the results showed that the overall miss rate was at least 14 percent. Thus, although the exact rate could not be determined, a lower bound could be established. In view of these results, it was decided to continue attempts to reconcile these units, although at a subsample level. Therefore, a systematic subsample of one-third of the ED's containing one or more unmatched vacants was selected for reconciliation. These units were included in the June 1971 CPS enumerator's work assignment.

After the review of the reconciled cases, each CPS unit was classified as matched, missed, or noninterview for coverage evaluation by occupancy status in the CPS, and the appropriate information recorded. Each missed unit was further classified as being part of an entirely missed address or as belonging to a partially enumerated address. Counts were summarized to segment level with the 1970 ED for the segment identified. This summarized information was matched to the Geographic Reference Tape (GRT) to obtain the geographic information for each segment.

Prior to that process, however, the following two operations were initiated:

- a. In conventional areas an intensive review of the occupied unmatched units in entirely missed addresses was made. Address registers were again searched, along with census questionnaires when needed. Based on this review, approximately 20 percent of the 428 sample units previously classified as missed were reclassified. Of those reclassified, over two-thirds were matched while the remainder were either converted to noninterview for the coverage study or were found to be out-of-scope, i.e., the unit was not expected to be included in the census. In many of these cases there appeared to be a clerical error made in the initial matching operation. The complete CPS address and, in several cases, the household

name were found in the address register. For others, matches—which could not be expected to have been made if strict adherence to the matching instructions were observed—were able to be made based on secondary information.

- b. In mail areas, a subsample of the unmatched occupied units was identified for further searching by selecting a sample of district offices containing one or more missed units. The district offices were sampled with varying degrees of probability depending upon the number of unmatched units per office. For the subsample, two additional searches were conducted.

The first was a search of addresses added by the post office either a few weeks prior to or at the time of questionnaire delivery. Whenever a unit was found during the post office check for which there was no questionnaire, the postman was to report (on a blue card) the address as well as the ED of a nearby unit for which he had a questionnaire. When the blue cards were returned to the appropriate district offices, each address was independently coded to an ED whenever possible—this ED was recorded on the blue card—and added to the register for that ED. If an address could not be independently coded, then it was generally added to the ED reported by the post office. Conceivably, the ED allocated by the Geography Branch for the CPS-Census Match study might not correspond to the one to which the unit was actually added. Thus, the post office reports for the selected district offices were searched for each unmatched address, and whenever an address was found, the ED to which it was added was searched.

Concurrently, a search of census addresses not codable to an ED by the Address Coding Guide (ACG) was made. In Tape Address Register (TAR) areas (mail areas for which a commercial mailing list formed the basis of the census listing of units) the ACG was developed for the purpose of assigning various geographical codes, including ED, to the census listings. Some addresses were not codable by the ACG. These addresses were assigned to an ED in the census district offices.

With the completion of these two additional search operations, approximately one-half of the subsample cases were matched. Not all the additional matches, however, were a direct result of the search among postal and enumerator add, but rather resulted from an intensive review similar to that conducted for the conventional unmatched units. About half of the new matches resulted from matching to blue cards and the other half from the intensive review. At the completion of these two operations, the summaries were corrected accordingly.

A final step before undertaking the analysis of the data was to estimate standard errors for the housing unit missed rates. Two assumptions were made in the variance estimation:

- (1) That CPS segments were sampled in random fashion rather than systematically. The effect this assumption would have on the variance estimates for missed unit rates was investigated and found to be trivial.
- (2) That the relvariance of the missed rate (estimated number of missed units divided by the estimated number of units enumerated) was equal to the relvariance on the numerator of that rate. The effect of this assumption was not investigated, but we considered it reasonable to disregard it on the basis of the positive correlation between segment size and number of missed units.

C. Limitations of Data

The data presented in this report for the CPS-Census Match are subject to the following limitations:

1. SAMPLING VARIABILITY

The missed rates presented are based on observations made for a sample of units and are therefore subject to sampling variability. In the attached tables, the estimates of standard error determined from the sample accompany each missed rate. (For some cells the sample was so small that no missed units were observed. In these instances no estimate of the standard error was presented.) These estimated standard errors can be used to construct confidence intervals for the error rate; that is, an interval having prescribed probability that it would include the average result of all possible samples. The chances are 68 out of 100 that a sample estimate will differ from the average results of all possible samples by less than one standard error (plus or minus). Similarly, the chances are about 95 out of 100 that the difference would be less than twice the standard error.

2. NONINTERVIEWS

For the CPS-Census Match, no attempt was made to adjust the final missed rates to allow for the problem of field noninterviews (units which could not be determined to be either matched or missed). The coverage study noninterview rate for occupied units was approximately 0.5 of 1 percent, and so any resultant bias should be trivial. For vacants, however, nearly one-fifth of the units were classed as noninterview for the coverage study. The impact of so large a noninterview rate is not clear, although it seems likely that because of the nature of vacant units (especially rural vacants) a higher proportion of these units was probably missed than was estimated for the units where the evaluation was successfully completed. Thus, the missed rates appearing in the data tables for vacant units most likely understate, to some extent, the rate that would have been obtained if the enumeration status for all sample units had been determined.

3. OMISSION OF SPECIAL PLACE UNITS

Both the CPS and the census classify some living quarters as being in special places (transient type places, hospitals, penal institutions, etc.). Both housing units and group quarters in such places were considered out-of-scope for this study. (Such living quarters account for less than 3 percent of all housing.) During the course of the address register search, particular difficulty was encountered in matching CPS units that were enumerated in special places—especially special place vacant units. Out of a total of 1,750 special place sample units, over 60 percent (1,075) could not be found in the address registers.⁸ For the 1,166 special place vacant units, nearly 80 percent (924) were not matched. Several factors made the advisability of further attempts to match these units questionable. First, there was a serious concern because of definitional differences between the CPS and the census as to whether or not many of these units should have been included in the census at all. For example, a special place vacant unit would not be counted in the census if the special place enumerator found that no one lived in the entire special place at the time of her visit. The cost and effort most

likely required to make determinations of this type during field reconciliation were considered to be prohibitive. Secondly, even if the effort were made, it was doubtful whether enough conclusive information could be gathered so that meaningful estimates of the special place coverage error could be made. Based on these limiting factors it was decided to omit all CPS special place units from the evaluation study and to confine the study to regular housing units only.

4. POSSIBLE CORRELATED BIAS BETWEEN CPS AND CENSUS COVERAGE

One important finding of the CPS-Census Match was the large reduction of the occupied housing unit coverage missed rates in large places (250,000 persons and over) as compared to 1960. The mail area study supported the finding that the 1970 error rate is lower in these areas than it was in 1960, but the level of reduction estimated was substantially smaller than the estimates from the CPS-Census Match. For example, the CPS-Census Match estimated missed rate for places of 1 million persons and over was 0.7 of 1 percent as compared to 1.9 percent in the mail area study and 3.5 percent in 1960. Although the mail area results apply only to mail areas, the two studies are measuring missed rates for essentially the same areas since places of 250,000 persons and over were predominantly mail in 1970.

We accept the mail area estimates for places of these sizes as better estimates of the error rate in 1970. We also suspect that the CPS-Census Match does in fact understate the missed rates in these large places because we believe that there is a high correlation between units left out of CPS and units which were missed in the census. As mentioned in section B, Methodology, the 1960 Census registers were one source from which units were selected for inclusion in the CPS. For the large places, the registers were the principal source. Obviously, units which were missed in 1960 had no initial chance for inclusion in the CPS B segments. Although the successor check (see section B) was intended as a means to pick up precisely these units (as well as units formed subsequent to the census), it is estimated that no more than half of the 1960 misses were detected by that procedure. It seems reasonable to assume that the units which were missed in 1960 had a higher probability of being missed in 1970 than units which were enumerated. (The failure of the successor check to pick up about half of these units indicates their continued high risk nature.) Based on this assumption, one would conclude that if all the 1960 missed units had been represented in the CPS, the estimated missed rate from the CPS-Census Match would be somewhat higher.

5. MATCHING PROBLEMS

Probably the most crucial aspect of a record check study is the ability to correctly match elements in one source to those in the second. Inherent in the matching operation are two types of errors: (1) the matching of elements which are not the same and (2) the failure to match elements when in fact they exist in both sources. In the CPS-Census Match, where the elements to be matched were housing units, the magnitude of such errors is, of course, unknown. We believe the occurrence of erroneous matches—especially for occupied units—was rare since not only were addresses utilized in the matching process but occupants' names as well. Errors of the second type were probably less rare. Although exact numbers are not available, several cases which were nonmatches as a result of the clerical matching operation were later matched based on additional information acquired during field reconciliation. Thus, it seems reasonable that other units which remained classified as nonmatches were actually counted in the census.

⁸ This does not necessarily imply that this level of coverage error existed for special place units. The census records for special places often could not be located in order to determine the coverage completeness for special place housing units.

More severe matching problems were encountered for vacant units—especially those in rural areas. CPS listers in these areas were prone to identify units by description, such as “yellow house with green shutters” rather than by address. Moreover, even when addresses were given, they were most often of a general nature, such as general delivery, route 1, etc. Clearly, with no names with which to compare, it was virtually impossible to match such units to census listings. It was for this reason that during reconciliation we allowed CPS interviewers to use their knowledge of the area in attempting to determine whether these CPS units were listed in the census. Even so, no determination could be made for about 30 percent of the cases sent to the field. It is almost certain that a fair proportion of these units were listed in the census.

A further problem in matching arose not necessarily because of any problem related to the identification of the units in the two sources, but because the search was conducted in the wrong place. Due to the immensity of the census records, it was not feasible to compare each CPS unit to every census listing. Thus, we relied on the ED allocation operation to tell us in what ED we should expect to find the CPS unit listed in the census. To the extent that ED's allocated by the Geography Branch were incorrect, or that units were placed in the wrong ED as a result of processing, etc., nonmatches occurred because the ED in which the unit was actually placed in the census was never searched.

6. U.S. LEVEL ESTIMATES NOT APPLICABLE TO INDIVIDUAL SMALL AREAS

In addition to national estimates of error rates, measures of error are presented in this report for various types of geographical areas. These rates are representative of the areas as a whole but should not be used for individual places. For example, the fact that places of 1 million persons and over were found to have an error rate of 0.5 percent does not necessarily imply that Los Angeles city (which is a place of 1 million persons and over) has an error rate of the same magnitude.

7. FIELD LEVEL OF ERRORS ONLY ESTIMATED

Unless specifically labeled “after processing,”⁹ the errors estimated from this study were based on the number of housing units listed in the address registers, and do not take into account changes made during processing. For example, both the Post Enumeration Post Office Check (PEPOC) which was performed in the South region after field enumeration, and the supplemental forms operation which was designed to enumerate certain segments of the population who had not been enumerated due to specific circumstances (such as overseas travel), resulted in important additions to the occupied housing unit counts.

⁹ Estimate of the numbers of units added during processing are from PHC(E)-6.

Chapter III. The Evaluation of Housing Unit Coverage in Mail Areas— Methodology and Limitations

A. Introduction

Since the 1970 Census was the first decennial census to make use of a mail-out/mail-back enumeration technique, it was felt that a separate in-depth study should be made of the coverage. Moreover, since coverage in the mail census was initially dependent upon the mailing lists that were used to address the census questionnaires, we were interested in measuring the relative completeness and accuracy of two types of mailing lists used—Tape Address Registers (TAR) and Prelist Registers.

For about three-fourths of the mail area, the Bureau obtained computer tapes of residential addresses from commercial sources. Late in 1969, address labels were printed from the computer tapes and delivered to post offices within the mail census areas. The post offices reviewed the addresses to see that all residences were accounted for in the census and to see that the houses and apartments were identified properly. After the postal review, revisions and additions were made to the computer tapes, and the addresses were assigned various geographic codes and sorted into enumeration districts (ED's). For the remaining one-fourth of the mail area for which commercial registers were not available or were not suitable for census use, the Bureau created new mailing lists by having census canvassers visit the ED's and prelist the housing units. The prelisting was generally done in the early spring of 1970 for the Southern and Western States, but was done in the fall of 1969 for the Northeast and North Central States in order to avoid possible adverse weather conditions.

Both the TAR and Prelist mailing lists were reviewed by the post offices 2 weeks prior to delivery of the census questionnaires, as well as at the time of delivery. The postal carriers notified the Bureau of residences for which they had no census questionnaires, and also identified the census district office and ED numbers shown on the census questionnaires for neighboring units. These post office adds were checked for possible duplication of addresses already known to the Census and, if not duplicated, were then entered in the appropriate ED registers and questionnaires were mailed to them. Approximately 2 weeks after the questionnaire mailing, census enumerators began making personal visits to housing units from which questionnaires had not been returned, and the enumerators also added a small number of units (usually additional apartments they found at street addresses already included on the mailing lists).

The primary purpose of the mail area evaluation study was to determine the overall completeness of the final mailing lists and to obtain separate coverage error rates for the two types of address registers that had been used. Two major types of errors were investigated—the omission of units in entirely missed addresses (structures) and missed and overenumerated units in enumerated addresses. The study was based on two samples:

1. The street addresses of all buildings in about 8,000 city blocks were relisted after the census, and a comparison was

made with the census mailing lists in order to measure missed units in missed structures. This is referred to as the **area sample**.

2. For about 20,000 of those street addresses, the units within the buildings were relisted for comparison with the mailing lists in order to measure missed and duplicated units within enumerated structures. This is referred to as the **address sample**.

B. Methodology

1. SAMPLE SELECTION

a. Tape Address Register (TAR) Areas

A systematic sample of approximately 15,000 addresses (house number and street name) was selected from computer tapes. The addresses were sampled without regard to number of units and were sampled in clusters of two from the TAR in 235 areas that were included in the Bureau's Current Population Survey design.¹⁰ The tract and block assigned to the first address in each cluster identified a sample of 7,284 blocks to be relisted for the area sample. Additional addresses were sampled from those addresses that had been added by the post office review and from addresses that had been added by census followup enumerators. Additional blocks were also sampled from the following:

- (1) 110 blocks were selected from blocks for which the TAR had no residences (these are referred to as zero blocks; typically they are blocks that contain only commercial establishments).
- (2) In parts of the country that were covered by the Tape Address Register, all city blocks should have been identified on the TAR regardless of whether or not they contained any housing. During quality control checks that were made on the TAR, some blocks were found to have been initially left out or to have been unrecognizable by the census district office codes that had been assigned to them. A sample of 38 such blocks were also selected for the area sample. (These blocks were later included in the census but they originally had no chance for sample selection in the evaluation study.)

¹⁰For a more detailed description of the Current Population Survey, see Bureau of the Census Technical Paper No. 7, *The Current Population Survey: A Report on Methodology*.

b. Prelist Areas

A PPS (probability proportionate to size) sample of 1,250 ED's was selected from Prelist areas in the 235 Area Design with an ED measure of size being approximately equal to precensus estimates of the number of housing units within the ED modulo 60. Within each sample ED, one land segment expected to contain approximately 60 housing units was selected at random to be relisted for the area sample.

A systematic sample of approximately four housing units was selected from each sample ED. The sampling interval was based on the average prelist ED size, thus, more or fewer addresses were selected from those ED's which were larger or smaller than average.

c. Sample Adjustments

After the sample was selected, some minor adjustments were performed. It was decided that all addresses and segments located within the area covered by the Mail Extension Test¹¹ should not be interviewed. Special place addresses (hotels, motels, etc.) were also eliminated since they were not enumerated using the mail procedures. Because the deleted block sample was selected not only from blocks for which no record existed in the TAR, but from blocks which were covered by the TAR but miscoded, 49 blocks selected in the nonzero and zero block samples and included in the deleted block universe were dropped from the sample.

Also dropped from the sample were 117 blocks with invalid geographic codes making it impossible to determine the area sampled for listing.

In several instances, the sample block had been merged with a nonsample block. For these cases, the new tract-block combination was used with the weight adjusted to reflect the total probability of selection.

2. INITIAL FIELD WORK

For each area sample block or segment, an interviewer was given a map of the area to be relisted and an Address Coverage Listing Book, form D-861 (see appendix). Evaluation interviewers canvassed the sample areas in order to list all structures and to identify those that contained living quarters. The interviewers were also given a Record of Living Quarters, form D-860 (see appendix), for each sample address and conducted interviews in order to list the living quarters at those addresses and determine their census-day household names.

3. INITIAL MATCHING TO CENSUS RECORDS AND RECONCILIATION

a. Area Sample

Each residential address listed in the area sample was searched for in the census records. The search was initially done in the census ED that had been sampled, but was later extended to other ED's that might possibly have contained the addresses than had been relisted.

For each address that was not found in the census, a Record of Living Quarters was prepared for a followup interviewer (reconciler) to use in confirming that (1) the address that had been searched for was a valid address, (2) the address existed at the time of the census, and (3) the address was for residential use. The interviewer also conducted an interview to list the units at the addresses that appeared to have been missed by the census.

b. Address Sample

Each Record of Living Quarters filled for a sample address was edited to determine the number of housing units existing at the time of the census, and the number was compared to the number of units actually enumerated in the census. A comparison was also made of the occupancy status of the units enumerated with their occupancy status as reported by the evaluation interviewers. If there was a difference in the number of units or in their occupancy status, a Reconciliation Questionnaire, form D-866 (see appendix), was prepared for followup enumeration (reconciliation).

The Reconciliation Questionnaire contained two lists of the units but did not identify the source of the lists. One list showed the units that were enumerated in the census and their household names, and the other list showed units (and their occupants) that were reported by the initial evaluation interviewer.

4. POST-RECONCILIATION MATCHING

a. Area Sample

As reconcilers returned the Record of Living Quarters for addresses that initially had not been found in the census, the forms were examined to identify addresses that should not have been counted in the census, e.g., new construction. Addresses of units found to be built after the census, or that were nonresidential at the time of the census, were dropped from the study. The remaining addresses were again searched for in the census using the additional information that had been obtained by the reconcilers (alternative addresses that the structures used and the names of the occupants). Finally, the addresses were grouped by census district offices, and for a subsample of 46 offices, the addresses were searched for among the postal adds that had been made at the time of census questionnaire delivery. (This search was made to see if some addresses that had been initially missed by the census had later been added by the post office reviews, but added to the wrong census ED's.) About 11 percent of the addresses searched for in this manner were found in the census, and the missed rate was adjusted accordingly for addresses that had not been searched for among the postal adds.

b. Address Sample

As the Reconciliation Questionnaires were returned for the addresses where the census appeared to have missed or overenumerated the units, or possibly had misclassified the occupancy status for units, the potential errors were examined with respect to the reconcilers' findings. For about half of the addresses it was found that the census had made only a definitional error (counted one household as occupying two or more units or counted two or more households as occupying one unit), or that the original evaluation interviewer's list was in error. For the remaining addresses, the census records were rechecked for the missed or duplicated units, and the data were used to estimate the coverage error rates within enumerated addresses.

¹¹PHC(E)-3 - Results and Analysis of the Experimental Mail Extension Test, June 1973.

5. PREPARATION FOR COMPUTER OPERATIONS

a. Address Sample

Various information was placed on computer tape for each address in the address sample. Included were identifying information, ED, number of enumerated units, missed units by occupied and vacant, overenumerated units by occupied and vacant, deletes by correct and erroneous, and information for each unit such as number of occupants, their race, and how well the individual units in multi-unit structures were identified.

b. Area Sample

To compile the results of the area sample matching, the number of units was totaled for the missed and enumerated addresses. For the missed addresses, the number of units and their occupancy classification as found during reconciliation were accepted as the number of missed occupied and vacant units. The information was then placed on computer tape and edited to eliminate coding errors and inconsistencies.

6. COMPUTER OPERATIONS

The area sample and address sample tapes were matched to the original sample tapes to obtain State, county, tract, block, district office, and sampled ED, then they were matched to the census Geographic Reference Tape to obtain SMSA code, urban/rural code, place size code, and place description code. The estimates and their variances were then computed using the area and address sample tapes.

C. Limitations on Data

1. NONINTERVIEWS

The noninterview¹² rates for both samples were small and no noninterview adjustment were made to the data. Only 1.3 percent of the sample addresses were not evaluated. There were 12 complete blocks from the area sample that were never relisted, and 574 potentially missed addresses from the area sample which were not reconciled.

2. SAMPLING VARIABILITY

The variance estimates are based on the variability between ultimate clusters without regard to PSU, where an ultimate cluster is defined as (1) a block or segment from the area sample and (2) all addresses in the address sample originally coded to a selected tract and block. The effects of systematic sampling and the between PSU component of the non-selfrepresenting-PSU variance were examined and determined to have little effect on the variances for the estimated coverage error rates.

¹²The term noninterview denotes a sample address for which the census count of units was not evaluated, or a sample block that was not relisted during the evaluation study.

Chapter IV. Definitional Errors in the Housing Counts—Methodology and Limitations

A. Introduction

It is intuitively possible to recognize the existence of a housing unit in most living arrangements. For instance, a single-family home or apartment occupied by a man, his wife, and children is obviously a housing unit, whereas a hospital room occupied by a patient, generally is not. There exist, however, some living arrangements which require the application of the census definition in order to determine whether such an arrangement qualifies as a housing unit.

The definition of a housing unit used in the 1970 Census is a room or group of rooms occupied (or intended to be occupied, if vacant) as living quarters such that the occupants live and eat separately from all other persons in the structure and the occupants have either direct access to their living quarters (directly from the outside or through a common or public hall) or complete kitchen facilities (sink, range or cook stove, and refrigerator) for their own use.

The failure to apply or the misapplication of the above definition can result in a housing unit being definitionally missed or overenumerated. A housing unit is said to be definitionally missed if the occupants of two or more housing units are enumerated as occupants of one housing unit. A housing unit is said to be definitionally overenumerated if the occupants of a single unit are enumerated as occupants of two or more housing units. Clearly, definitional housing coverage errors affect the housing count but not the total population count, although they can introduce distortions in population distributions.

Experience from previous evaluations showed that certain responses to selected census questionnaire items indicated a high potential of a definitional error being associated with that household. Conversely, the likelihood of definitional error among other households was very small. This provided the basis for estimating the approximate level of definitional error with a reasonably small sample, i.e., screen for and interview only those households which have a high potential for error. Specifically, questionnaires which listed as household members persons not related to the head or relatives other than the spouse and children of the head may be subject to definitionally missed units, whereas questionnaires enumerated as occupied which reported the living quarters lacking either complete kitchen facilities or direct access may be subject to definitional overenumerations.

B. Methodology

1. SAMPLE SELECTION

Four samples of households (one for misses and one for overenumerations for mail and conventional census areas) were selected in four stages as follows:

- (a) Stage 1—The PSU's in the 235 PSU CPS design¹³ were

ranked in descending order of size by population of the stratum that each PSU represented. A subset of 68 PSU's was selected with probability proportionate to the size of the stratum.

- (b) Stage 2—A sample of 278 ED's was drawn with equal probability from all conventional ED's in the 68 PSU's, and a sample of 420 ED's was drawn with equal probability from all mail ED's in the 68 PSU's.¹⁴
- (c) Stage 3—All census questionnaires (excluding Special Place and group quarters schedules which were designated out of the scope of this evaluation) in the sampled ED's were reviewed for potential cases of error. Those questionnaires which exhibited a potential error were stratified according to their risk of error (e.g., a household that reported nonrelatives as members was more likely to be in error than a household that reported in-laws as members).
- (d) Stage 4—The potential cases of error were subsampled to obtain the desired number of cases for field reinterview. (See table R for a summary of sample sizes.)

2. THE FIELD WORK

The reinterviews were conducted by the Bureau's staff of current survey interviewers who were familiar with census housing unit definitions and who received specific training on the reinterview questionnaire, form D-870, used for this study.

3. REVIEW TO CONFIRM ERRORS

Before finally assigning a definitional error, all census questionnaires in the ED from which the sample unit was selected were reviewed in order to determine if the correct number of housing units was enumerated in the census for the household in question.

4. NUMBER OF SAMPLE INTERVIEWS, ERRORS, AND NONINTERVIEWS

The sample sizes, number of completed interviews, and the number of noninterview cases for the four components of the definitional error study sample are summarized in table R.

¹³For a more detailed description of the Current Population Survey, see Bureau of the Census Technical Paper No. 7, *The Current Population Survey: A Report on Methodology*.

¹⁴Special place ED's (e.g., military installations, hospitals, university housing, etc.) were excluded from the sample since the definitional error in these ED's should be minimal and have a negligible impact on the national housing unit inventory.

Table R. Size of Sample, Number of Errors, and Number of Noninterviews

Potential error sample cases for mail and conventional census areas (1)	Number of field cases (2)	Completed interviews		Non-interviews (5)
		Total (3)	Number of errors (4)	
Mail misses.....	1,174	1,016	72	158
Mail overenumeration....	644	488	7	156
Conventional misses.....	740	656	22	84
Conventional overenumeration.....	411	303	2	108

C. Limitations on Data

The error rates presented in this report are subject to two principal limitations, sampling variability and the problem of noninterview.

1. SAMPLING VARIABILITY

The estimated standard errors for this study were calculated in one of two ways. For those errors for which clustering existed, the coefficient of intraclass correlation was estimated from the sample and applied to the binomial variance. For those error

rates which were very small with little clustering, the sampling distribution of errors was assumed to approximate a Poisson distribution.¹⁵

2. NONINTERVIEWS

The noninterview problem actually is a composite of two problems. Because of processing and logistical problems in the central processing office in Jeffersonville, Ind., where the initial review of census schedules occurred, approximately 8 percent of all ED's selected were never located for this study. This effectively reduced the total number of census schedules reviewed, concentrated the field reinterview sample in a smaller geographic area, and introduced some amount of bias of unknown magnitude into the results. The field noninterviews also introduced some bias inasmuch as the noninterviews, which were caused almost exclusively by movers, were undoubtedly selective rather than random.

To the extent possible, both of the aforementioned problems were accounted for in the final estimates of error by assuming the noninterviews had the same distribution of errors as the cases where the evaluation was successfully completed. The non-interview adjustments were made for each of the risk strata separately.

¹⁵ These methods of approximating standard errors are discussed fully in many sampling and survey texts.

Table 1. Estimated Total Missed Rates for Housing Units, by Listing Procedure (E3)

(Data shown as estimated numbers of missed units per 100 enumerated units. Error rates reflect space missed units only—see text for a discussion of the term "space" missed units. Unless specifically labeled "after processing," data based on field enumeration coverage only. Details may not add to totals due to rounding)

Category (1)	Total United States				Mail ¹						Conventional			
	Space missed rate		Standard error of rate		Total		TAR ²		Prelist		Space missed rate		Standard error of rate	
	Before processing (2)	After processing (3)	Before processing (4)	After processing (5)	Space missed rate (6)	Standard error of rate (7)	Space missed rate (8)	Standard error of rate (9)	Space missed rate (10)	Standard error of rate (11)	Before processing (12)	After processing (13)	Before processing (14)	After processing (15)
A. Total missed units.....	2.5	2.2	0.2	0.2	1.6	0.2	1.2	0.2	3.5	0.7	3.9	3.2	0.2	0.2
1. Missed units in enumerated addresses.....	0.5	(NA)	0.1	(NA)	0.6	0.1	0.6	0.1	0.5	0.2	0.4	(NA)	0.1	(NA)
2. Missed units in missed addresses.....	2.0	(NA)	0.1	(NA)	1.0	0.2	0.6	0.2	3.0	0.5	3.5	(NA)	0.2	(NA)
B. Total missed occupied units.....	1.7	1.4	0.2	0.2	1.2	0.2	0.9	0.2	2.6	0.4	2.6	1.9	0.1	0.1
1. Missed occupied units in enumerated addresses.....	0.4	(NA)	0.1	(NA)	0.5	0.1	0.5	0.1	0.4	0.1	0.3	(NA)	0.1	(NA)
2. Missed occupied units in missed addresses.....	1.3	(NA)	0.1	(NA)	0.7	0.2	0.4	0.2	2.1	0.3	2.4	(NA)	0.1	(NA)
C. Total missed vacant units.....	12.1	11.8	1.4	1.4	8.8	2.4	6.5	1.4	16.1	8.8	14.8	14.3	1.6	1.6
1. Missed vacant units in enumerated addresses.....	2.0	(NA)	0.5	(NA)	2.3	1.0	2.6	0.9	1.5	2.9	1.7	(NA)	0.3	(NA)
2. Missed vacant units in missed addresses.....	10.1	(NA)	1.2	(NA)	6.4	1.7	3.9	1.0	14.6	6.0	13.1	(NA)	1.6	(NA)
1970 Census counts														
A. Total units.....	68,679,030				41,959,248		33,783,720		8,175,528		26,719,982			
B. Total occupied units.....	63,449,747				39,824,971		32,300,860		7,524,111		23,624,776			
C. Total vacant units.....	5,229,283				2,134,277		1,482,860		651,417		3,095,006			

NA Not available.

¹The preferred estimated error rates for occupied housing units in mail areas are given by the mail area study in table 6.

²The Tape Address Register—a commercial mailing list on computer tape which was used as the initial listing of units.

Table 2. Estimated Total Missed Rates for Housing Units, by SMSA Residence (E3)

(Data shown as estimated numbers of missed units per 100 enumerated units. Error rates reflect space missed units only—see text for a discussion of the term "space" missed units. Unless specifically labeled "after processing," data based on field enumeration coverage only. Details to totals due to rounding)

Category (1)	Total United States				Inside SMSA ¹						Outside SMSA		
	Space missed rate		Standard error of rate		Total SMSA		In central city		Not in central city		Space missed rate		Standard error of rate
	Before processing	After processing	Before processing	After processing	Space missed rate	Standard error of rate	Space missed rate	Standard error of rate	Space missed rate	Standard error of rate	Before processing	After processing	Before processing
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
A. Total missed units.....	2.5	2.2	0.2	0.2	1.7	0.2	1.2	0.2	2.2	0.3	4.1	3.4	0.
1. Missed units in enumerated addresses..	0.5	(NA)	0.1	(NA)	0.5	0.1	0.8	0.2	0.3	0.1	0.4	(NA)	0.
2. Missed units in missed addresses.....	2.0	(NA)	0.1	(NA)	1.2	0.2	0.4	0.1	1.9	0.3	3.7	(NA)	0.
B. Total missed occupied units.....	1.7	1.4	0.2	0.2	1.4	0.2	0.9	0.2	1.8	0.3	2.6	1.9	0.
1. Missed occupied units in enumerated addresses..	0.4	(NA)	0.1	(NA)	0.5	0.1	0.7	0.2	0.3	0.1	0.2	(NA)	0.
2. Missed occupied units in missed addresses...	1.3	(NA)	0.1	(NA)	0.9	0.2	0.2	0.1	1.6	0.3	2.4	(NA)	0.
C. Total missed vacant units.....	12.1	11.8	1.4	1.4	8.0	1.3	6.9	1.7	9.3	1.5	16.5	16.1	2.
1. Missed vacant units in enumerated addresses..	2.0	(NA)	0.5	(NA)	2.0	0.7	2.7	1.1	1.3	0.4	1.9	(NA)	0.
2. Missed vacant units in missed addresses.....	10.1	(NA)	1.2	(NA)	6.0	1.1	4.2	1.3	8.0	1.5	14.6	(NA)	2.
1970 Census counts													
A. Total units.....	68,679,030				46,295,423		22,593,884		23,701,539		22,383,607		
B. Total occupied units.....	63,449,747				43,862,993		21,382,260		22,480,733		19,586,754		
C. Total vacant units.....	5,229,283				2,432,430		1,211,624		1,220,806		2,796,853		

NA Not available.

¹The preferred estimated error rates for occupied housing units inside SMSA's are given by the mail area study in

Table 3. Estimated Total Missed Rates for Housing Units, by Urbanized Area Residence (E3)

(Data shown as estimated numbers of missed units per 100 enumerated units. Error rates reflect space missed units only—see text for a discussion of the term "space" missed units. Unless specifically labeled "after processing," data based on field enumeration coverage only. Details to totals due to rounding)

Category (1)	Total United States				Urban						Rural		
	Space missed rate		Standard error of rate		Total urban		Urbanized area		Outside urbanized area		Space missed rate		Standard error of rate
	Before processing	After processing	Before processing	After processing	Space missed rate	Standard error of rate	Space missed rate	Standard error of rate	Space missed rate	Standard error of rate	Before processing	After processing	Before processing
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
A. Total missed units.....	2.5	2.2	0.2	0.2	1.7	0.2	1.3	0.2	3.1	0.2	4.8	4.3	0.
1. Missed units in enumerated addresses..	0.5	(NA)	0.1	(NA)	0.6	0.1	0.5	0.1	0.8	0.1	0.2	(NA)	0.
2. Missed units in missed addresses.....	2.0	(NA)	0.1	(NA)	1.1	0.2	0.8	0.2	2.3	0.2	4.6	(NA)	0.
B. Total missed occupied units.....	1.7	1.4	0.2	0.2	1.3	0.2	1.1	0.2	2.2	0.2	3.1	2.5	0.
1. Missed occupied units in enumerated addresses..	0.4	(NA)	0.1	(NA)	0.5	0.1	0.5	0.1	0.4	0.1	0.1	(NA)	0.
2. Missed occupied units in missed addresses...	1.3	(NA)	0.1	(NA)	0.8	0.2	0.6	0.2	1.8	0.2	3.0	(NA)	0.
C. Total missed vacant units.....	12.1	11.8	1.4	1.4	8.2	1.1	6.1	1.3	13.6	2.4	17.5	17.2	2.
1. Missed vacant units in enumerated addresses..	2.0	(NA)	0.5	(NA)	3.0	0.7	2.2	0.8	5.2	1.2	0.6	(NA)	0.
2. Missed vacant units in missed addresses.....	10.1	(NA)	1.2	(NA)	5.2	1.0	3.9	1.0	8.4	2.3	16.8	(NA)	2.
1970 Census counts													
A. Total units.....	68,679,030				50,142,601		(NA)		(NA)		18,536,429		
B. Total occupied units.....	63,449,747				47,562,681		37,814,089		9,748,592		15,887,066		
C. Total vacant units.....	5,229,283				2,579,920		(NA)		(NA)		2,649,363		

NA Not available.

Table 4. Estimated Total Missed Rates for Housing Units, by Size of Place (E3)

(Data shown as estimated numbers of missed units per 100 enumerated units. Error rates reflect space missed units only—see text for a discussion of the term "space" missed units. Unless specifically labeled "after processing," data based on field enumeration coverage only. Details may not add to totals due to rounding)

Category (1)	Total United States				Urban ¹										
	Space missed rate		Standard error of rate		1,000,000 and over		500,000-999,999		250,000-499,999		100,000-249,999		50,000-99,999		
	Before processing	After processing	Before processing	After processing	Space missed rate	Standard error of rate	Space missed rate	Standard error of rate	Space missed rate	Standard error of rate	Space missed rate	Standard error of rate	Space missed rate	Standard error of rate	
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	
A. Total missed units.....	2.5	2.2	0.2	0.2	1.1	0.5	0.1	0.1	0.9	0.3	2.3	0.6	1.7	0.2	
1. Missed units in enumerated addresses.....	0.5	(NA)	0.1	(NA)	0.8	0.4	(NA)	(NA)	0.4	0.2	1.8	0.6	0.4	0.2	
2. Missed units in missed addresses.....	2.0	(NA)	0.1	(NA)	0.3	0.1	0.1	0.1	0.5	0.2	0.6	0.2	1.3	0.1	
B. Total missed occupied units.....	1.7	1.4	0.2	0.2	0.7	0.5	0.1	0.1	0.4	0.2	1.8	0.6	1.6	0.2	
1. Missed occupied units in enumerated addresses.....	0.4	(NA)	0.1	(NA)	0.7	0.5	(NA)	(NA)	0.3	0.2	1.5	0.6	0.4	0.2	
2. Missed occupied units in missed addresses.....	1.3	(NA)	0.1	(NA)	0.1	0.1	(NA)	(NA)	0.1	0.1	0.4	0.1	1.2	0.1	
C. Total missed vacant units.....	12.1	11.8	1.4	1.4	8.1	2.8	1.4	1.4	8.3	4.1	10.3	5.3	4.9	2.2	
1. Missed vacant units in enumerated addresses.....	2.0	(NA)	0.5	(NA)	3.0	1.8	(NA)	(NA)	1.7	1.6	6.2	4.0	2.0	1.4	
2. Missed vacant units in missed addresses.....	10.1	(NA)	1.2	(NA)	5.1	2.1	1.4	1.3	6.6	3.8	4.1	3.4	2.9	1.9	
	Urban--Continued								Total urban		Rural				
	25,000-49,999		10,000-24,999		2,500-9,999		Less than 2,500				Space missed rate		Standard error of rate		
	Space missed rate	Standard error of rate	Space missed rate	Standard error of rate	Space missed rate	Standard error of rate	Space missed rate	Standard error of rate	Space missed rate	Standard error of rate	Before processing	After processing	Before processing	After processing	
	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	
	A. Total missed units.....	2.0	0.4	1.5	0.3	3.2	0.4	1.4	1.3	1.7	0.2	4.8	4.3	0.3	0.3
	1. Missed units in enumerated addresses.....	0.6	0.1	0.7	0.2	0.5	0.1	(NA)	(NA)	0.6	0.1	0.2	(NA)	0.1	(NA)
	2. Missed units in missed addresses.....	1.4	0.4	0.8	0.1	2.6	0.4	1.4	1.1	1.1	0.2	4.6	(NA)	0.3	(NA)
	B. Total missed occupied units.....	1.5	0.3	1.4	0.3	2.4	0.4	1.3	0.8	1.3	0.2	3.1	2.5	0.2	0.2
	1. Missed occupied units in enumerated addresses.....	0.5	0.1	0.6	0.3	0.2	0.1	(NA)	(NA)	0.5	0.1	0.1	(NA)	0.1	(NA)
	2. Missed occupied units in missed addresses.....	1.0	0.3	0.8	0.1	2.2	0.4	1.3	0.8	0.8	0.2	3.0	(NA)	0.2	(NA)
C. Total missed vacant units.....	11.1	5.1	5.1	1.8	13.5	2.2	4.5	(NA)	8.2	1.1	17.5	17.2	2.6	2.6	
1. Missed vacant units in enumerated addresses.....	2.4	1.6	3.5	1.3	4.8	1.1	(NA)	(NA)	3.0	0.7	0.6	(NA)	0.7	(NA)	
2. Missed vacant units in missed addresses.....	8.8	4.8	1.6	1.2	8.7	1.7	4.5	(NA)	5.2	1.0	16.8	(NA)	2.1	(NA)	

NA Not available. ¹The preferred estimated error rates for occupied housing units in urban places of 250,000 or more population are given by the mail area study in table 9.

Table 5. Estimated Total Missed Rates for Housing Units, by Region (E3)

(Data shown as estimated numbers of missed units per 100 enumerated units. Error rates reflect space missed units only—see text for a discussion of the term "space" missed units. Unless specifically labeled "after processing," data based on field enumeration coverage only. Details may not add to totals due to rounding)

Category (1)	Total United States				Region									
	Space missed rate		Standard error of rate		Northeast		North Central		South				West	
									Space missed rate		Standard error of rate			
	Before process- ing	After process- ing	Before process- ing	After process- ing	Space missed rate	Standard error of rate	Space missed rate	Standard error of rate	Before process- ing	After process- ing	Before process- ing	After process- ing	Space missed rate	Standard error of rate
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	
A. Total missed units.....	2.5	2.2	0.2	0.2	2.6	0.5	1.5	0.2	3.5	2.6	0.4	0.3	1.9	0.3
1. Missed units in enumerated addresses..	0.5	(NA)	0.1	(NA)	0.6	0.2	0.5	0.2	0.6	(NA)	0.1	(NA)	0.2	0.1
2. Missed units in missed addresses.....	2.0	(NA)	0.1	(NA)	2.0	0.4	1.0	0.2	3.0	(NA)	0.3	(NA)	1.7	0.3
B. Total missed occupied units.....	1.7	1.4	0.2	0.2	1.8	0.4	0.8	0.2	2.6	1.7	0.4	0.3	1.6	0.2
1. Missed occupied units in enumerated addresses..	0.4	(NA)	0.1	(NA)	0.6	0.2	0.4	0.2	0.4	(NA)	0.1	(NA)	0.2	0.1
2. Missed occupied units in missed addresses...	1.3	(NA)	0.1	(NA)	1.2	0.3	0.4	0.1	2.3	(NA)	0.3	(NA)	1.4	0.2
C. Total missed vacant units.....	12.1	11.8	1.4	1.4	14.3	5.0	11.1	1.9	13.7	12.8	1.8	1.7	7.3	2.2
1. Missed vacant units in enumerated addresses..	2.0	(NA)	0.5	(NA)	1.6	1.6	1.8	0.6	2.9	(NA)	0.8	(NA)	1.0	1.1
2. Missed vacant units in missed addresses...	10.1	(NA)	1.2	(NA)	12.7	3.8	9.3	1.8	10.8	(NA)	1.6	(NA)	6.4	2.2
1970 Census counts														
A. Total units.....	68,679,030				16,642,665		18,973,217		21,031,346				12,031,802	
B. Total occupied units.....	63,449,747				15,482,778		17,537,256		19,258,163				11,171,550	
C. Total vacant units.....	5,229,283				1,159,887		1,435,961		1,773,183				860,252	

NA Not available.

Table 6. Estimated Coverage Error Rates for Housing Units in Mail Areas, by Listing Procedure (E6)

(Data shown as estimated number of "space" coverage errors per 100 enumerated housing units. Data based on field enumeration coverage only. Details may not add to totals due to rounding)

Category (1)	U.S. total, mail areas		Listing procedure			
			TAR		Prelist	
	Coverage error rate	Standard error of rate	Coverage error rate	Standard error of rate	Coverage error rate	Standard error of rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)
A. Total missed units.....	2.2	0.3	1.9	0.3	3.6	0.7
1. Missed units in enumerated addresses.....	1.0	0.2	1.1	0.3	0.6	0.1
2. Missed units in missed addresses.....	1.2	0.1	0.8	0.1	3.0	0.7
B. Total missed occupied units.....	1.3	0.1	1.3	0.1	1.6	0.2
1. Missed occupied units in enumerated addresses	0.6	0.1	0.6	0.1	0.5	0.1
2. Missed occupied units in missed addresses..	0.7	0.1	0.6	0.1	1.2	0.1
C. Total missed vacant units.....	19.2	4.9	16.0	5.7	27.1	8.3
1. Missed vacant units in enumerated addresses..	9.4	4.5	10.9	5.6	3.8	1.3
2. Missed vacant units in missed addresses....	9.8	2.1	5.1	0.7	23.3	8.2
Total overenumerated units.....	0.5	0.1	0.5	0.1	0.5	0.1
Occupied overenumerated units.....	0.3	(Z)	0.3	(Z)	0.2	0.1
Vacant overenumerated units.....	5.6	0.9	5.5	1.1	5.6	1.5
Net coverage error—total units ¹	-1.7	0.3	-1.4	0.3	-3.2	0.7
Net coverage error—occupied units ¹	-1.1	0.1	-1.0	0.1	-1.5	0.2
Net coverage error—vacant units ¹	-13.6	5.1	-10.5	5.8	-21.5	11.5
1970 Census counts for mail areas						
Total.....	41,959,248		33,783,720		8,175,528	
Occupied.....	39,824,971		32,300,860		7,524,111	
Vacant.....	2,134,277		1,482,860		651,417	

Z Less than 0.05 percent.
coverage in the census.

¹Net coverage error equals overenumeration rate minus missed rate. Minus sign (-) indicates net under-

Table 7. Estimated Coverage Error Rates for Housing Units in Mail Areas, by SMSA (E6)

(Data shown as estimated numbers of "space" coverage errors for housing units per 100 enumerated housing units. Data based on field enumeration coverage only. Details may not add to totals due to rounding)

Category (1)	U.S. total, mail areas		Inside SMSA										Outside SMSA	
			Total		In central city		Not in central city							
							Total		Urban		Rural			
	Cover- age error rate (2)	Stand- ard error of rate (3)	Cover- age error rate (4)	Stand- ard error of rate (5)	Cover- age error rate (6)	Stand- ard error of rate (7)	Cover- age error rate (8)	Stand- ard error of rate (9)	Cover- age error rate (10)	Stand- ard error of rate (11)	Cover- age error rate (12)	Stand- ard error of rate (13)	Cover- age error rate (14)	Stand- ard error of rate (15)
Total missed units.....	2.2	0.3	2.1	0.3	2.0	0.2	2.1	0.6	1.9	0.5	3.7	0.8	5.0	2.5
Missed units in enumerated addresses.....	1.0	0.2	1.0	0.2	1.3	0.2	0.8	0.5	0.8	0.5	0.4	0.2	1.1	0.4
Missed units in missed addresses.....	1.2	0.1	1.1	0.1	0.7	0.1	1.4	0.2	1.1	0.1	3.3	0.7	3.9	2.5
Total missed occupied units.....	1.3	0.1	1.3	0.1	1.5	0.2	1.1	0.1	1.0	0.1	1.8	0.2	1.3	0.3
Missed occupied units in enumerated addresses..	0.6	0.1	0.6	0.1	1.0	0.2	0.3	0.1	0.2	(Z)	0.4	0.2	0.5	0.2
Missed occupied units in missed addresses.....	0.7	0.1	0.7	0.1	0.5	0.1	0.9	0.1	0.8	0.1	1.4	0.2	0.8	0.2
Total missed vacant units.....	19.2	5.0	17.8	5.0	11.6	2.5	25.5	13.4	23.2	13.0	(¹)	(¹)	(¹)	(¹)
Missed vacant units in enumerated addresses....	9.4	4.5	9.6	4.8	7.1	2.1	12.8	11.0	15.4	13.0	(¹)	(¹)	(¹)	(¹)
Missed vacant units in missed addresses.....	9.8	2.2	8.2	1.3	4.5	1.2	12.7	2.2	7.8	1.0	(¹)	(¹)	(¹)	(¹)
Total overenumerated units.....	0.5	0.1	0.5	0.1	0.8	0.1	0.3	0.1	0.3	0.1	0.5	0.2	0.3	0.2
Occupied overenumerated units.....	0.3	(Z)	0.3	(Z)	0.4	0.1	0.2	0.1	0.2	(Z)	0.2	0.1	0.1	0.1
Vacant overenumerated units.....	5.6	0.9	5.8	1.0	7.5	1.6	3.8	1.2	3.2	0.9	6.6	2.5	2.3	1.6
Net coverage error—total units ²	-1.7	0.3	-1.6	0.3	-1.3	0.3	-1.8	0.6	-1.6	0.5	-3.2	0.8	-4.7	2.5
Net coverage error—occupied units ²	-1.1	0.1	-1.1	0.1	-1.1	0.2	-1.0	0.2	-0.9	0.2	-1.6	0.2	-1.1	0.3
Net coverage error—vacant units ²	-13.6	5.1	-12.0	5.1	-4.2	2.9	-21.7	13.0	-20.0	13.1	(¹)	(¹)	(¹)	(¹)
	1970 Census counts		Estimated 1970 Census counts for mail areas (millions)											
Total.....	41,959,248		40.3		19.6		20.7		17.7		3.0		1.7	
Occupied.....	39,824,971		38.3		18.5		19.8		17.0		2.9		1.5	
Vacant.....	2,134,277		2.0		1.1		0.9		0.7		0.2		0.2	

Z Less than 0.05 percent. ¹Sample size too small to provide meaningful estimate. ²Net coverage error equals overenumeration rate minus missed rate. Minus sign (-) indicates net undercoverage in the census.

Table 8. Estimated Coverage Error Rates for Housing Units in Mail Areas, by Urbanized Areas (E6)

(Data shown as estimated numbers of "space" coverage errors for housing units per 100 enumerated housing units. Data based on field enumeration coverage only. Details may not add to totals due to rounding)

Category (1)	U.S. total, mail areas		Urban						Rural	
			Total urban		In urbanized areas		Outside urbanized areas			
	Coverage error rate (2)	Standard error of rate (3)	Coverage error rate (4)	Standard error of rate (5)	Coverage error rate (6)	Standard error of rate (7)	Coverage error rate (8)	Standard error of rate (9)	Coverage error rate (10)	Standard error of rate (11)
Total missed units.....	2.2	0.3	2.0	0.3	2.0	0.3	1.6	0.3	5.0	1.3
Missed units in enumerated addresses.....	1.0	0.2	1.1	0.3	1.1	0.3	0.5	0.2	0.8	0.2
Missed units in missed addresses.....	1.2	0.1	0.9	0.1	1.0	0.1	1.1	0.3	4.2	1.3
Total missed occupied units.....	1.3	0.1	1.3	0.1	1.3	0.1	1.0	0.2	1.9	0.2
Missed occupied units in enumerated addresses...	0.6	0.1	0.6	0.1	0.6	0.1	0.2	0.1	0.6	0.2
Missed occupied units in missed addresses.....	0.7	0.1	0.7	0.1	0.6	0.1	0.8	0.2	1.3	0.3
Total missed vacant units.....	19.2	5.0	16.0	5.1	16.2	5.4	13.4	3.5	(¹)	(¹)
Missed vacant units in enumerated addresses....	9.4	4.5	10.1	5.1	10.3	5.3	5.8	2.9	(¹)	(¹)
Missed vacant units in missed addresses.....	9.8	2.2	5.9	0.8	5.8	0.8	7.6	2.3	(¹)	(¹)
Total overenumerated units.....	0.5	0.1	0.5	0.1	0.5	0.1	0.1	0.1	0.5	0.3
Occupied overenumerated units.....	0.3	(Z)	0.3	(Z)	0.3	(Z)	(Z)	(Z)	0.2	0.3
Vacant overenumerated units.....	5.6	0.9	5.7	1.0	5.8	1.1	2.4	2.1	4.8	1.8
Net coverage error—total units ²	-1.7	0.3	-1.4	0.3	-1.5	0.3	-1.5	0.3	-4.5	1.3
Net coverage error—occupied units ²	-1.1	0.1	-1.0	0.1	-1.0	0.1	-1.0	0.2	-1.7	0.2
Net coverage error—vacant units ²	-13.6	5.1	-10.4	5.2	-10.3	5.5	-11.0	4.1	(¹)	(¹)
	1970 Census counts		Estimated 1970 Census counts for mail areas (millions)							
Total.....	41,959,248		38.3		36.6		1.7		3.6	
Occupied.....	39,824,971		36.4		34.8		1.6		3.4	
Vacant.....	2,134,277		1.9		1.8		0.1		0.2	

Z Less than 0.05 percent. ¹Sample size too small to provide meaningful estimate. ²Net coverage error equals overenumeration rate minus missed rate. Minus sign (-) indicates net undercoverage in the census.

Table 9. Estimated Coverage Error Rates for Housing Units in Mail Areas, by Size of Place (E6)

(Data shown as estimated numbers of "space" coverage errors for housing units per 100 enumerated housing units. Data based on field enumeration coverage only. Details may not add to totals due to rounding)

Category	U.S. total, mail area		Size of place													
			1,000,000 and over		500,000- 999,999		100,000- 499,999		50,000- 99,999		2,500- 49,000		Under 2,500 and not a place, urban		Rural	
	Cover- age error rate	Stand- ard error of rate	Cover- age error rate	Stand- ard error of rate	Cover- age error rate	Stand- ard error of rate	Cover- age error rate	Stand- ard error of rate	Cover- age error rate	Stand- ard error of rate	Cover- age error rate	Stand- ard error of rate	Cover- age error rate	Stand- ard error of rate	Cover- age error rate	Stand- ard error of rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Total missed units.....	2.2	0.3	2.3	0.4	2.6	0.7	1.2	0.3	1.4	0.3	2.1	0.8	2.1	0.4	5.0	1.3
Missed units in enumerated addresses.....	1.0	0.2	1.3	0.2	1.9	0.6	0.8	0.3	0.7	0.2	1.2	0.8	0.3	0.1	0.8	0.2
Missed units in missed addresses....	1.2	0.1	1.0	0.3	0.8	0.2	0.5	0.1	0.7	0.2	0.9	0.1	1.8	0.3	4.2	1.3
Total missed occupied units.....	1.3	0.1	1.9	0.4	2.1	0.6	0.8	0.1	1.0	0.3	0.8	0.1	1.6	0.4	1.9	0.2
Missed occupied units in enumerated addresses.....	0.6	0.1	1.2	0.2	1.6	0.5	0.4	0.1	0.5	0.2	0.3	0.1	0.2	0.1	0.5	0.2
Missed occupied units in missed addresses.....	0.7	0.1	0.7	0.3	0.6	0.2	0.3	0.1	0.5	0.2	0.6	0.1	1.4	0.3	1.3	0.1
Total missed vacant units.....	19.2	5.0	11.9	4.7	8.8	3.6	10.3	3.8	11.3	3.9	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
Missed vacant units in enumerated addresses.....	9.4	4.5	4.3	1.9	5.5	3.5	7.5	3.6	6.3	3.7	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
Missed vacant units in missed addresses.....	9.8	2.1	7.6	4.3	3.3	0.7	2.9	1.3	5.0	1.4	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
Total overenumerated units.....	0.5	0.1	0.7	0.2	1.2	0.3	0.5	0.2	0.4	0.1	0.3	0.1	0.1	0.1	0.5	0.1
Occupied overenumerated units.....	0.3	(Z)	0.5	0.1	0.5	0.2	0.2	0.1	0.3	0.1	0.2	0.1	(Z)	(Z)	0.2	0.1
Vacant overenumerated units.....	5.6	0.9	5.5	0.2	9.7	0.3	7.0	0.3	3.6	2.1	3.5	1.1	2.6	1.2	4.8	1.8
Net coverage error—total units ²	-1.7	0.3	-1.6	0.4	-1.4	0.7	-0.7	0.3	-1.0	0.3	-1.8	0.8	-2.0	0.4	-4.5	1.3
Net coverage error—occupied units ² ..	-1.1	0.1	-1.4	0.4	-1.6	0.5	-0.6	0.2	-0.7	0.3	-0.7	0.2	-1.6	0.4	-1.7	0.2
Net coverage error—vacant units ²	-13.6	5.1	-6.4	5.1	+0.9	4.7	-3.3	4.9	-7.7	4.4	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
	1970 Census counts		Estimated 1970 Census counts for mail areas (millions)													
Total.....	41,959,248		6.5		4.9		6.9		4.4		11.0		4.7		3.6	
Occupied.....	39,824,971		6.2		4.5		6.5		4.2		10.5		4.5		3.4	
Vacant.....	2,134,277		0.3		0.4		0.4		0.2		0.5		0.2		0.2	

Z Less than 0.05 percent. ¹Sample size too small to provide meaningful estimate. ²Net coverage error equals overenumeration rate minus missed rate. Minus sign (-) indicates net undercoverage in the census; plus sign (+) indicates net overenumeration in the census.

Table 10. Estimated Coverage Error Rates for Housing Units in Mail Areas, by Region (E6)

(Data shown as estimated numbers of "space" coverage errors for housing units per 100 enumerated housing units. Data based on field enumeration coverage only. Details may not add to totals due to rounding)

Category	U.S. total, mail areas		Region							
			Northeast		North Central		South		West	
	Coverage error rate	Standard error of rate	Coverage error rate	Standard error of rate	Coverage error rate	Standard error of rate	Coverage error rate	Standard error of rate	Coverage error rate	Standard error of rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Total missed units.....	2.2	0.3	2.6	0.4	2.1	0.7	2.5	0.4	1.3	0.3
Missed units in enumerated addresses.....	1.0	0.2	1.2	0.2	1.1	0.7	1.3	0.3	0.3	0.1
Missed units in missed addresses.....	1.2	0.1	1.3	0.3	1.0	0.2	1.2	0.2	1.0	0.2
Total missed occupied units.....	1.3	0.1	1.5	0.2	1.0	0.2	1.8	0.3	0.9	0.2
Missed occupied units in enumerated addresses..	0.6	0.1	0.8	0.1	0.3	0.1	1.1	0.3	0.2	0.1
Missed occupied units in missed addresses.....	0.7	0.1	0.7	0.1	0.7	0.1	0.8	0.1	0.7	0.2
Total missed vacant units.....	19.2	5.0	24.5	6.8	25.3	15.8	12.1	2.6	10.2	2.6
Missed vacant units in enumerated addresses....	9.4	4.5	10.1	3.1	17.7	15.5	4.2	2.0	2.3	1.1
Missed vacant units in missed addresses.....	9.8	2.1	14.4	5.9	7.6	3.0	7.9	1.7	7.9	2.4
Total overenumerated units.....	0.5	0.1	0.5	0.1	0.6	0.1	0.6	0.2	0.3	0.1
Occupied overenumerated units.....	0.3	(Z)	0.3	0.1	0.3	0.1	0.1	0.1	0.3	0.1
Vacant overenumerated units.....	5.6	0.9	4.7	1.2	6.8	1.9	7.2	2.3	1.7	1.0
Net coverage error—total units ¹	-1.7	0.3	-2.1	0.4	-1.6	0.7	-1.9	0.4	-1.0	0.3
Net coverage error—occupied units ¹	-1.1	0.1	-1.2	0.2	-0.8	0.2	-1.7	0.3	-0.6	0.2
Net coverage error—vacant units ¹	-13.6	5.1	-19.8	7.9	-18.5	15.8	-4.9	3.4	-8.6	3.0
	1970 Census counts for mail areas									
Total.....	41,959,248		13,844,478		12,014,680		8,566,082		7,534,008	
Occupied.....	39,824,971		13,141,070		11,449,769		8,046,214		7,187,918	
Vacant.....	2,134,277		703,408		564,911		519,868		346,090	

Z Less than 0.05 percent. ¹Net coverage error equals overenumeration rate minus missed rate. Minus sign (-) indicates net undercoverage in the census.

Appendix - Principal Forms Used in Evaluating Housing Coverage in the 19th Decennial Census

This appendix contains specimens of the reinterview forms that were used in the three studies that evaluated the coverage of housing in the 1970 Census. The purpose and use of the forms are described in the methodology chapters of this report.

The following were used in the CPS-Census Match (E3)

- D-831 Reconciliation Questionnaire
- D-831A Possible Match Reconciliation Questionnaire
- D-838 Reconciliation Report

The following were used in the Census Mail Area Study (E6)

- D-860 Record of Living Quarters
- D-861 Address Coverage Listing Book
- D-866 Reconciliation Questionnaire

The following was used in the Evaluation of Definitional Errors in the Housing Count (E7)

- D-870 Housing Unit Definitional Error Study

U.S. DEPARTMENT OF COMMERCE BUREAU OF THE CENSUS		BUDGET BUREAU NO. 41-S70043 APPROVAL EXPIRES DECEMBER 31, 1971	
RECONCILIATION QUESTIONNAIRE CPS - CENSUS MATCH (E3) 19th Decennial Census - 1970			
Section I - IDENTIFICATION			
1. CPS Control No. PSU	2. Segment No.	3. Regional Office	4. District Office No.
5. Address or location			
a. House number and street name			
b. Apartment or location description			
c. City, town, or place	State	ZIP code	d. Telephone No.
Section II - INTERVIEW CONTROL			
1. Interview to be conducted <input type="checkbox"/> A - Go to page 2 <input type="checkbox"/> B - Go to page 4		2. Type of interview <input type="checkbox"/> Telephone <input type="checkbox"/> Personal visit	
3. Results of interview <input type="checkbox"/> Complete <input type="checkbox"/> Incomplete - Explain in remarks			
Section III - RESPONDENTS			
Name			
Address (Apt. No. if any)			
First			
Second			
Third			
Remarks			
FOR OFFICE USE ONLY			
A	B	C	D
	E	F	G
	H	I	J

INTERVIEW A	
INTERVIEWER - The CPS address for this unit does not appear in the Census Address Register. This interview is to obtain information about whether the unit could be identified in another way in the Census or was missed.	
Introduce yourself if you have NOT enumerated the unit for CPS this month.	
We want to be sure that every house and apartment was counted at the correct address in the Census conducted last April.	
1. What is the correct mailing address for this house (apt.)?	
House number	Street name
Apartment	
OR	
Household head name	RFD and box No. or lockbox No. or general delivery
AND	
City	State
ZIP code	
2. In addition to (Read address from item 1), does this house/apartment building use any other address?	
<input type="checkbox"/> No - Skip to item 4	
<input type="checkbox"/> Yes - Continue with item 3	
3. What is the other address?	
House number	Street name
Apartment	
OR	
Household head name	RFD and box No. or lockbox No. or general delivery
AND	
City	State
ZIP code	
4. INTERVIEWER CHECK ITEM	
<input type="checkbox"/> End the interview at this point and complete Sections II and III, page 1.	
<input type="checkbox"/> Continue the interview with item 5, page 3.	
Remarks	

INTERVIEW A - Continued

5. INTERVIEWER - The following table shows the units which were listed in the Census for this address. Note that neither the CPS unit nor its March occupants appear to be listed. You are to decide whether or not the unit was included in the Census. Using your own knowledge about the CPS unit and any information shown on the Control Card or segment list about the unit's correct identification, examine Table A and write in the "Remarks" section whether or not you believe the unit is listed. Before making a decision, you may want to inquire about mergers, conversions, or other changes which could have occurred after the March interview. In some cases, you may know the answer without inquiring. For example, you may know that the CPS unit is equivalent to one listed in Table A because you learn that the household occupying the unit in March has been replaced by one listed in Table A. On the other hand, you may know that the unit was missed because the Census list shows the correct apartment numbers but is incomplete.

Be sure to state in the "Remarks" section your reason for believing that the CPS unit was included or was missed in the Census.

END INTERVIEW AND COMPLETE SECTIONS II and III, PAGE 1.

Table A - Census List of Units

Apartment (1)	Census occupant (2)
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	
16.	
17.	
18.	
19.	
20.	
Remarks	

Page 3

INTERVIEW B

INTERVIEWER - This interview is to obtain information about why people are missed in the Census. List 1 below shows the March CPS household members for this unit while List 2 shows the household members reported in the Census. A name circled in red in List 1 is for a CPS household member who was not listed on the Census questionnaire and for whom you are to conduct this interview.

NOTE - In some cases a name similar to the CPS household member is shown in List 2. If you determine that the two names refer to the same person state this in the "Remarks" section and omit the interview for that person.

Table B - Comparison of Household Members

List 1 - March CPS Household Members			List 2 - Census Household Members		
Name	Relation to head	Age	Name	Relation to head	Age

Introduce yourself if you have NOT enumerated the unit for CPS this month

We want to be sure that everyone was counted in the Census conducted last spring. As part of the monthly labor force survey interview last March, we had (read name circled in red) listed as a member of this household. He/she was not included on your Census questionnaire.

1. Can you think of any reason why . . . was left off your questionnaire?

☐ Yes - Mark appropriate category in item 2 ☐ No - Ask item 2 and mark appropriate category

2. During last April or May, was he/she -

Yes No

☐ a. (Ask only for persons 16-30). Away from home attending college? If "Yes," END INTERVIEW for this person and complete Sections II and III, page 1.

☐ b. Away from home in a hospital?

☐ c. Away from home on a visit or vacation?

☐ d. Traveling because of job or business? - If "Yes," ask item 3

☐ e. A household member? - If "No," ask item 4

☐ f. Left off the Census questionnaire for some other reason?

Specify reason and END INTERVIEW for this person

3. When . . . was away on the job or business at the time of the Census, what kind of work was he/she doing? - Specify; for example, construction work, salesperson, etc.

END INTERVIEW for this person and complete Sections II and III, page 1.

4. When did . . . move?

Month and day

END INTERVIEW for this person and complete Sections II and III, page 1.

Remarks

Page 4

FORM D-831 (6-16-70)

Section II – INTERVIEW – Continued																		
<p>3. Did the household who was enumerated in the Census occupy the CPS unit at any time during March 1970?</p> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 45%;"> <input type="checkbox"/> Yes – When did they move in? → <small>(If you have the control card on which the Census household was enumerated in the CPS, copy the household members in the Remarks section and END INTERVIEW.)</small> </div> <div style="width: 45%; text-align: center;"> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Month</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Household</div> </div> </div> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 45%;"> <input type="checkbox"/> No – Ask item 7 </div> <div style="width: 45%; text-align: center;"> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Month</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Household</div> </div> </div>	<p>5. Was the CPS unit occupied at any time during April, May, June, or July, 1970 by one of the above households enumerated in the Census?</p> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 45%;"> <input type="checkbox"/> Yes – Which household → <small>AND when did they move in?</small> </div> <div style="width: 45%; text-align: center;"> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Month</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Household</div> </div> </div> <p><small>(If you have the control card on which the Census household was enumerated in the CPS, copy the household members in the Remarks section and END INTERVIEW.)</small></p>	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 45%;"> <input type="checkbox"/> No – Locate the building whose address is given in item 2, above, and answer item 6. </div> <div style="width: 45%; text-align: center;"> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Month</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Household</div> </div> </div>																
<p>4. Was the CPS unit vacant at any time during April, May, June, or July of 1970?</p> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 45%;"> <input type="checkbox"/> Yes – When did the March 1970 CPS household move out? → <small>(Ask item 7)</small> </div> <div style="width: 45%; text-align: center;"> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Month</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Household</div> </div> </div> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 45%;"> <input type="checkbox"/> No </div> <div style="width: 45%; text-align: center;"> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Month</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Household</div> </div> </div>	<p>6a. Does the building identified by the address in item 2, on page 1, contain the CPS unit?</p> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 45%;"> <input type="checkbox"/> Yes – Ask item 6b <input type="checkbox"/> No – Ask item 7 </div> <div style="width: 45%; text-align: center;"> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Month</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Household</div> </div> </div> <p>b. Is the April 1, 1970 Census list of units correct for this building?</p> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 45%;"> <input type="checkbox"/> Yes – Ask item 7 <input type="checkbox"/> No – Describe in Remarks what is wrong with Census listing and continue with item 7. </div> <div style="width: 45%; text-align: center;"> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Month</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Household</div> </div> </div>																	
<p><i>Ask the following questions of an occupant of the CPS unit. If vacant, ask the questions of a neighbor.</i></p> <p>7. We want to be sure that every house and apartment was counted at the correct address in the Census conducted last April.</p> <p>a. What is the correct mailing address for this house (apt.)?</p>																		
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; padding: 5px;">House number</td> <td style="width: 40%; padding: 5px;">Street name</td> <td style="width: 20%; padding: 5px;">Apartment</td> </tr> <tr> <td colspan="3" style="text-align: center; padding: 5px;">OR</td> </tr> <tr> <td colspan="3" style="padding: 5px;">Household head name RFD and box No. or lockbox No. or general delivery</td> </tr> <tr> <td colspan="3" style="text-align: center; padding: 5px;">AND</td> </tr> <tr> <td style="padding: 5px;">City</td> <td style="padding: 5px;">State</td> <td style="padding: 5px;">ZIP code</td> </tr> </table>				House number	Street name	Apartment	OR			Household head name RFD and box No. or lockbox No. or general delivery			AND			City	State	ZIP code
House number	Street name	Apartment																
OR																		
Household head name RFD and box No. or lockbox No. or general delivery																		
AND																		
City	State	ZIP code																
<p>b. In addition to (Read address from item 7a), does this house/apartment building use any other address?</p> <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 45%;"> <input type="checkbox"/> Yes – Continue with item c </div> <div style="width: 45%; text-align: center;"> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Month</div> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Household</div> </div> </div>																		
<p>c. What is the other address?</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; padding: 5px;">House number</td> <td style="width: 40%; padding: 5px;">Street name</td> <td style="width: 20%; padding: 5px;">Apartment</td> </tr> <tr> <td colspan="3" style="text-align: center; padding: 5px;">OR</td> </tr> <tr> <td colspan="3" style="padding: 5px;">Household head name RFD and box No. or lockbox No. or general delivery</td> </tr> <tr> <td colspan="3" style="text-align: center; padding: 5px;">AND</td> </tr> <tr> <td style="padding: 5px;">City</td> <td style="padding: 5px;">State</td> <td style="padding: 5px;">ZIP code</td> </tr> </table>				House number	Street name	Apartment	OR			Household head name RFD and box No. or lockbox No. or general delivery			AND			City	State	ZIP code
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Household head name RFD and box No. or lockbox No. or general delivery																		
AND																		
City	State	ZIP code																

[illegible]

Section IV - DETERMINING LIVING QUARTERS		Section V - IDENTIFICATION	
<p><input type="checkbox"/> Part A - STRUCTURE WAS BUILT AS AN APARTMENT HOUSE WITH NUMBERED OR LETTERED APARTMENTS</p> <p>1. By observation, list ALL apartments at the address. Record each apartment on a separate line in column B of the Table.</p> <p>After listing, contact the rental office, owner, manager, superintendent, or long-term resident, and READ ITEM 2 BELOW.</p> <p>2. I am . . . from the U.S. Bureau of the Census - here is my identification card. We are visiting a sample of addresses in the area to see if any living quarters were missed in the Census. I have some questions I would like to ask you.</p> <p>ASK ITEM 2 BELOW</p> <p>3. I have a list of all apartments at (address). Would you please look it over and add any apartments, occupied or vacant, that are not on the list . . . including any rent-free apartments such as the caretaker's or resident manager's.</p> <p>Show respondent the table. Add any apartments he tells you about to column B of the Table, then follow instructions in item 4, below.</p> <p>4. The rest of the interview consists of asking questions C through E of the Table for numbered or lettered apartments. After asking questions C through E for each apartment, complete Section II and END THE INTERVIEW.</p> <p>NOTE: 1. If you listed 5 or more apartments and the respondent is not the owner, manager, or superintendent, have your listing verified again by asking item 3, above of another respondent. Enter a check (✓) in column A of the Table as each apartment is verified by the second respondent. If the respondent tells you about any other apartments at the sample address, add them to column B of the Table and ask questions C - E for them. Be sure to record each respondent in Section II.</p> <p>2. If, in the course of interviewing, you come across any unlisted apartments at the sample address, add them to column B of the Table and ask questions C - E for each added apartment.</p>		<p><input type="checkbox"/> Part B - ALL OTHERS</p> <p>1. I am . . . from the U.S. Bureau of the Census - here is my identification card. We are visiting a sample of addresses in the area to see if any living quarters were missed in the Census. I have some questions I would like to ask you.</p> <p>ASK ITEM 2 BELOW</p> <p>2. I need to make a list of all occupied and vacant living quarters at (address). Would you please identify each of them for me?</p> <p>List each living quarters in column B of the Table, then ASK ITEM 3 BELOW.</p> <p>3. Are there any other buildings using (address) that have living quarters, such as a garage apartment?</p> <p>Add any other living quarters to column B of the Table and note in Remarks the number of living quarters in each building. Then ASK ITEM 4 BELOW.</p> <p>4. On April 1, Census Day, were there any other living quarters at (address), such as vacant rooms for rent or basement apartments?</p> <p>Add any other living quarters to column B of the Table, then follow instructions in item 5, below.</p> <p>5. The rest of the interview consists of filling the table of living quarters.</p> <p>a. If you have found the address to be a one-family home, ask questions C through E only. Then complete Section II and END THE INTERVIEW.</p> <p>b. If you have listed more than one living quarters in the Table, fill the entire Table.</p> <p>(1) Ask columns C through E for ALL living quarters</p> <p>(2) Ask columns F through H for living quarters which were occupied on April 1.</p> <p>(3) Ask columns I through J for living quarters which were vacant on April 1.</p> <p>After filling the Table, complete Section II and END THE INTERVIEW.</p>	
<p><input type="checkbox"/> Part A - STRUCTURE WAS BUILT AS AN APARTMENT HOUSE WITH NUMBERED OR LETTERED APARTMENTS</p> <p>1. By observation, list ALL apartments at the address. Record each apartment on a separate line in column B of the Table.</p> <p>After listing, contact the rental office, owner, manager, superintendent, or long-term resident, and READ ITEM 2 BELOW.</p> <p>2. I am . . . from the U.S. Bureau of the Census - here is my identification card. We are visiting a sample of addresses in the area to see if any living quarters were missed in the Census. I have some questions I would like to ask you.</p> <p>ASK ITEM 3 BELOW</p> <p>3. I have a list of all apartments at (address). Would you please look it over and add any apartments, occupied or vacant, that are not on the list . . . including any rent-free apartments such as the caretaker's or resident manager's.</p> <p>Show respondent the table. Add any apartments he tells you about to column B of the Table, then follow instructions in item 4, below.</p> <p>4. The rest of the interview consists of asking questions C through E of the Table for numbered or lettered apartments. After asking questions C through E for each apartment, complete Section II and END THE INTERVIEW.</p> <p>NOTE: 1. If you listed 5 or more apartments and the respondent is not the owner, manager, or superintendent, have your listing verified again by asking item 3, above of another respondent. Enter a check (✓) in column A of the Table as each apartment is verified by the second respondent. If the respondent tells you about any other apartments at the sample address, add them to column B of the Table and ask questions C - E for them. Be sure to record each respondent in Section II.</p> <p>2. If, in the course of interviewing, you come across any unlisted apartments at the sample address, add them to column B of the Table and ask questions C - E for each added apartment.</p>		<p><input type="checkbox"/> Part B - ALL OTHERS</p> <p>1. I am . . . from the U.S. Bureau of the Census - here is my identification card. We are visiting a sample of addresses in the area to see if any living quarters were missed in the Census. I have some questions I would like to ask you.</p> <p>ASK ITEM 2 BELOW</p> <p>2. I need to make a list of all occupied and vacant living quarters at (address). Would you please identify each of them for me?</p> <p>List each living quarters in column B of the Table, then ASK ITEM 3 BELOW.</p> <p>3. Are there any other buildings using (address) that have living quarters, such as a garage apartment?</p> <p>Add any other living quarters to column B of the Table and note in Remarks the number of living quarters in each building. Then ASK ITEM 4 BELOW.</p> <p>4. On April 1, Census Day, were there any other living quarters at (address), such as vacant rooms for rent or basement apartments?</p> <p>Add any other living quarters to column B of the Table, then follow instructions in item 5, below.</p> <p>5. The rest of the interview consists of filling the table of living quarters.</p> <p>a. If you have found the address to be a one-family home, ask questions C through E only. Then complete Section II and END THE INTERVIEW.</p> <p>b. If you have listed more than one living quarters in the Table, fill the entire Table.</p> <p>(1) Ask columns C through E for ALL living quarters</p> <p>(2) Ask columns F through H for living quarters which were occupied on April 1.</p> <p>(3) Ask columns I through J for living quarters which were vacant on April 1.</p> <p>After filling the Table, complete Section II and END THE INTERVIEW.</p>	

FORM D-850 (2-13-70)

U.S. DEPARTMENT OF COMMERCE BUREAU OF THE CENSUS		BUDGET BUREAU NO. 41-S70014 APPROVAL EXPIRES DECEMBER 31, 1970																					
<p>RECORD OF LIVING QUARTERS</p> <p>Housing Unit Coverage and Sample Control Evaluation in Mail Areas (E-4)</p> <p>19th Decennial Census - 1970</p>																							
<p>Section I - IDENTIFICATION</p> <p>1. Assignment No. 2. ED No. 3. D.O. No. 4. Tract No. 5. Block No. 6. PSU No.</p> <p>7. Address or location</p> <p>a. House No. b. Street or road name c. Place name and ZIP code d. Rural route and box No.</p> <p>8. Special location instructions or identification</p> <p>9. Check the appropriate box below if the address in item 7 refers ONLY to a:</p> <p><input type="checkbox"/> Trailer or Mobile home . . .</p> <p><input type="checkbox"/> Special place or group quarters . . .</p> <p>(Describe type in REMARKS)</p> <p>DO NOT INTERVIEW</p>																							
<p>Section II - RESPONDENTS</p> <table border="1"> <thead> <tr> <th>Respondent</th> <th>Name</th> <th>Title</th> <th>Address and Apartment No.</th> <th>Telephone No.</th> </tr> </thead> <tbody> <tr> <td>ORIGINAL</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>SECOND</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>THIRD</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				Respondent	Name	Title	Address and Apartment No.	Telephone No.	ORIGINAL					SECOND					THIRD				
Respondent	Name	Title	Address and Apartment No.	Telephone No.																			
ORIGINAL																							
SECOND																							
THIRD																							
<p>Section III - INTERVIEW CONTROL</p> <p>1. Interview conducted by:</p> <p>a. Name _____</p> <p>b. Address _____</p> <p>c. Telephone No. _____</p> <p>2. Interview completed on:</p> <p>a. Date _____</p> <p>b. Time _____ a.m. _____ p.m.</p> <p>3. Interview results</p> <p><input type="checkbox"/> Complete</p> <p><input type="checkbox"/> Incomplete - Reason: _____</p> <p>FOR OFFICE USE ONLY</p> <p>a. b. c. d. e. f. g. h.</p>																							

USCOMM-DC

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

ADDRESS COVERAGE LISTING BOOK

HOUSING UNIT COVERAGE AND SAMPLE CONTROL EVALUATION IN MAIL AREAS (E6)

19th Decennial Census - 1970

Section I - IDENTIFICATION			Section II - ASSIGNMENT INFORMATION		
a. Assignment No.	d. Block or Segment No.	g. Block or segment boundaries	a. Assigned to:	Name of interviewer	
b. ED No.	e. Tract No.			Address	
				Telephone No.	
c. District Office No.	f. PSU No.		b. Date assignment started		
			c. Date assignment completed		

All listings on this
page are in
block number →

[illegible]

List C - RECONCILER'S RECORD OF UNITS AND OCCUPANTS						
Line No.	Apartment number, letter or description (C-2)	What is the name of the head of the household? (C-3)	Ask only if occupied		Ask only if vacant or present occupant not here on April 1. Who did live here on April 1? (C-6)	Ask if occupied on April 1 by other than present occupant. When did they move out? (C-7)
			Did you live here on April 1, Census day?	When did you move in? (C-5)		
			Yes Enter "X" (C-4)	No		
(C-1)						
1						
2						
3						
4						
5						
6						
7						
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9						
10						
11						
12						
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14						
15						
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17						
18						
19						
20						

After completing List C, go on to Section V, on page 4

Section V - BUILDING QUESTIONS	
1. When was this building originally built? (Do not consider remodeling, conversions, or additions to the building when asking about "year built.")	<input type="checkbox"/> 1965 or later <input type="checkbox"/> 1960 - 1964 <input type="checkbox"/> 1950 - 1959 <input type="checkbox"/> 1940 - 1949 <input type="checkbox"/> 1930 - 1939 <input type="checkbox"/> 1929 or earlier
2. What type of mail receptacles are provided for the units?	<input type="checkbox"/> A separate mailbox or mail slot for each unit <input type="checkbox"/> One mailbox or mail slot for all units <input type="checkbox"/> Other - Describe for example, "first and second floor apartments have mailboxes, basement apartment does not," or "mail dropped on table in hall."
3. How many mailboxes or mail slots are provided for the units? (Specify)	<input type="checkbox"/> No mail receptacles for these units (for example, mail picked up at Post Office) <input type="checkbox"/> No <input type="checkbox"/> Only some of them are marked
4. If mailboxes or mail slots are provided, are they marked by apartment number, letter, or location description? (Do not consider names on mailboxes as adequate marking.)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Only some of them are marked
5. Do the occupants of any unit ordinarily use a side or rear door to enter the building?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Which units?
6. Do any of the units consist of only 1 or 2 rooms?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Which units?
Notes	

NOTICE - Your report to the Census Bureau is confidential by law (Title 13, U.S.C.). It is to be used only by sworn Census employees and may be used only for statistical purposes.		BUDGET BUREAU NO. 41-S70019 APPROVAL EXPIRES: DECEMBER 1970 U.S. DEPARTMENT OF COMMERCE BUREAU OF THE CENSUS	
HOUSING UNIT DEFINITIONAL ERROR STUDY (E7) Coverage Evaluation 19th Decennial Census - 1970			
Section I - IDENTIFICATION AND CONTROL			
1. Location of the sample apartment or house (If you cannot find the address, explain in "Remarks" your efforts to locate it and what you learned about it.)	a. Address - Number and street or RFD and Box number	2. Control No.	
	b. Apartment or location description	3. District Office No.	
	c. City, town, or place	4. ED No.	
	d. County	e. State	
Section II - OCCUPANCY STATUS			
INTRODUCTION I am from the United States Bureau of the Census. We are visiting a sample of addresses to see if we counted the correct number of households in the Census.			
1. Determine the present occupancy status. <input type="checkbox"/> Occupied <input type="checkbox"/> Vacant - Contact a neighbor, introduce yourself, and ask item 3.			
2. Just to be sure, does the _____ household live here? <input type="checkbox"/> No - Ask item 3 <input type="checkbox"/> Yes - Go to Section III, Interview A or Interview B, whichever box is marked "X."			
3. Does the _____ household live in this (that) building? <input type="checkbox"/> Moved out of the building - Complete Section IV and END THE INTERVIEW <input type="checkbox"/> Yes - Locate the living quarters, record the address below, and begin the interview with item I of Section II.			
OFFICE USE ONLY A. _____ B. _____ C. _____ D. _____ E. _____ F. _____ G. _____ H. _____			

Section IV - INTERVIEW CONTROL				
1. Name of interviewer		2. Regional Office		
3. Record of calls				
Best time to call				
Call (a)	Date (b)	Time of day (c)	Completed (d)	Noninterview (e)
First		a.m. p.m.		
Second		a.m. p.m.		
If noninterview in Results, explain in "Remarks"				
4. Respondent	a. Name	c. Telephone Area code Number		
b. Address				
Remarks				

FORM D-838 (3-31-71)		U.S. DEPARTMENT OF COMMERCE BUREAU OF THE CENSUS		1. PSU number	2. Segment number
RECONCILIATION REPORT CPS-CENSUS MATCH (E3) 19th Decennial Census - 1970				3. This segment has been allocated to 1970 ED (Mark (X) one of the following)	
				<input type="checkbox"/> The segment is entirely within this ED. <input type="checkbox"/> Only part of the segment is within this ED. <input type="checkbox"/> This segment is entirely outside this ED. <i>(Sketch in the Remarks space the location of the CPS segment relative to this Census ED.)</i>	
CPS UNIT		Serial numbers of possible Census listings for the CPS unit	MATCH RESULTS		
Sheet and line number (1)	Control number (2)		Unit matched (Enter condition code and Census serial number) (4)	Unit missed (Enter condition code) (5)	No determination (Enter "X") (6)
Remarks					



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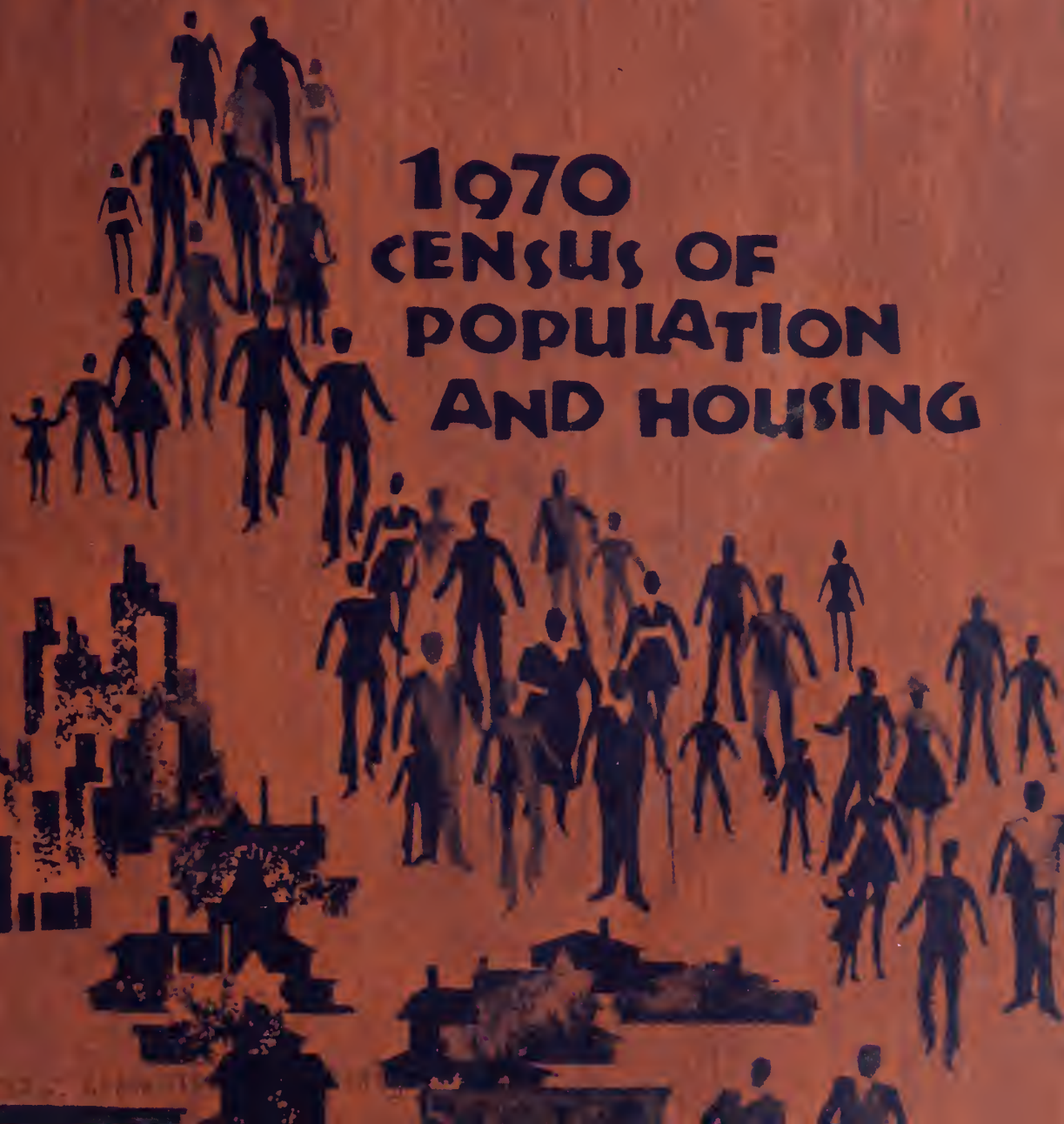
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Evaluation and Research Program

Effect of Special Procedures To Improve Coverage in the 1970 Census

PHC(E)-6



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OF COMMERCE

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Statistics Administration

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Daniel B. Levine, Associate Director for Demographic Fields

Alva L. Finkner, Associate Director for Statistical
Standards and Methodology

STATISTICAL METHODS DIVISION

Morton Boisen, Chief

ACKNOWLEDGMENTS—Many persons participated in the various activities of the 1970 Census. Primary direction of the census was given by **Conrad Taeuber**, Associate Director for Demographic Fields, assisted by **David L. Kaplan**, 1970 Census Coordinator, and in conjunction with **Paul R. Squires**, Associate Director for Data Collection and Processing, and **Joseph Waksberg**, Associate Director for Statistical Standards and Methodology.

This report was written by **Margaret A. Giglitto** of the Statistical Methods Division under the supervision of **Lawrence T. Love**, Chief, Survey Design Branch. **Walter M. Perkins** and **Charles D. Jones**, Assistant Division Chiefs, provided overall technical guidance in the planning of the various studies and in the analysis of the results.

This final report was based partially on initial summaries of results reported by staff members of the Statistical Methods Division. **William C. Davie** prepared an initial

summary on respondent's report of living quarters at his address. **Barnett Denton** prepared initial summaries of the data on the national vacancy check, on the post-enumeration Post Office check, and on the supplemental forms operation. **Margaret A. Giglitto** prepared initial summaries on the results of the other three studies.

The report is part of the Evaluation and Research Program of the 1970 Census, which was developed and directed by **Joseph Waksberg**. Determination of the counts of persons and housing units added by the vacancy check, by the postenumeration Post Office check, and by the supplemental forms operation was made by **Ruth H. Mills**, Population Division, **Meyer Zitter**, Chief, Assistance in the clerical phases of the studies was provided by **Martha Sutt**, **Ann Wheeler**, and **Susan Heskamp**, under the supervision of **Patricia Clark** and **Kathern M. Clay**, Chiefs of the Statistical Methods Branch, Data Preparation Division, **Robert L. Hagan**, Chief.

Within the Publication Services Division, many individuals made significant contributions in the areas of publications planning and design, editorial review, composition, and printing procurement.

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Evaluation and Research Program PHC(E)-6
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1970 CENSUS

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1970
CENSUS OF
POPULATION
AND HOUSING

Evaluation and Research Program

Effect of Special Procedures
To Improve Coverage
in the 1970 Census

Issued December 1974



Preface

This is one of a series of reports from the Evaluation and Research Program of the 1970 Census of Population and Housing. The program comprises a variety of studies, each designed to produce data on the accuracy of selected subject matter or on the effectiveness of specific methodological features of the census-taking process. The major findings and results from these studies are being published in the PHC(E) series of reports, as significant phases of the various studies are completed.

This report discusses the effectiveness of a number of special procedures included in the 1970 census to improve the accuracy and completeness of the population and housing counts. Data are presented on seven operations which worked by adding persons and housing units to the census rolls and for which estimates could be made of their contributions to the final counts. Also included is a discussion on how well the procedures designed for these operations were applied in the operational phases. A summary report on the effectiveness of these special procedures was presented at the annual meeting of the Population Association of America in April 1973. (See reference 1).

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Chapter I. Introduction and Summary of Results

For the last several decades the Census Bureau has devoted considerable attention to attempts to improve the counts of population and housing in the decennial censuses. In the 1950 census, formal training and quality control programs for enumerators were introduced for the first time to improve their performance. The data-collection methods were changed in 1960, one of the goals being to concentrate the enumerator's attention on coverage. A two-stage census procedure was utilized in most of the United States, the first stage being a housing-unit listing operation and completion of a short-form questionnaire in which a minimal amount of data was collected, so that the enumerator would not be distracted from the task of coverage. Improved training and tightened quality control, particularly for coverage, also were introduced.

In both 1950 and 1960 there were improvements in coverage over the preceding censuses. We presume that the methodological changes were at least partially responsible for the improvements, although we have no way of determining the actual contribution of the procedural changes as distinct from other factors which were not controlled.

When planning for the 1970 census began, three factors relating to coverage emerged. The first was that the need for as accurate a count of the population as possible would be even greater than in the past. This need arose from the redistricting in the 1960's as a result of the "one man-one vote" decision, the increasing tendency for governmental bodies to use population as a basis for distributing funds, and the increasing awareness by local government officials and others of the potential effects of undercounts.

The second factor was that without additional efforts, coverage in 1970 was likely to be worse than in the past few censuses. All through the 1960's, researchers were reporting increasing resistance on the part of the population to being interviewed; studies showed more alienation and distrust of the Government, and there appeared to be more organized attempts to protest the census. In addition, the segment of the population that traditionally had served as census enumerators, housewives, was diminishing in availability due to the increased participation of women in the labor force, and it appeared likely that the fear of being in the streets in many sections of large cities would further inhibit our ability to recruit enumerators.

The third factor was that, if any improvements were to be made, new methods would have to be developed. The 1950 and 1960 programs were predicated on the assumption that undercounts were due largely to the enumerator's failure to follow instructions. Hence, stress was placed on simplified procedures, training, and quality control. Analysis of the results of the 1960 evaluation program and of a number of studies performed in the 1950's and 1960's indicated that the reasons were more complex. In particular, a substantial part of the undercount appeared to be due either to deliberate attempts by some segments of the population to be omitted from the census or to the fact that they did not fit into any households by the conventional rules of residence. Even where the undercount was due to complete

households being missed, the causes were frequently such that additional enumerator training, exhortation to the enumerators, and similar approaches appeared potentially capable of only marginal gains.

This analysis led to a two-phase approach to coverage for the 1970 census. The first phase was the use of a methodology for the basic census that permitted knowledgeable outside sources to contribute to the list of housing units established for the census and provided for automatic checks that enumerators actually completed questionnaires for all known units. This phase was accomplished in about 60 percent of the United States through establishment of an address register independent of the enumeration phase, correction and updating of the register by Post Office carriers presumably familiar with their routes, and checks by census employees that all housing units on the address register were accounted for when completed assignments were turned in by enumerators. A self-enumeration questionnaire was used, as in 1960; we believe this provided somewhat better reporting within households because it permitted respondents to be more uniformly informed about the census definitions and the rules to follow for unusual household residence situations. In the remaining 40 percent of the United States more conventional listing procedures were followed, but also with self-enumeration features.

The second phase was to superimpose on the regular census procedures a group of projects specifically designed to increase coverage. Prior to the 1970 census, studies were made of the effectiveness of a variety of methods for improving coverage, generally as part of large-scale special censuses conducted during the 1960's. A group of these procedures was selected as promising best results, and a sum of about \$11 million was devoted to their implementation. The balance of this report will describe the projects and provide estimates of the additional number of persons and housing units enumerated by those projects for which measurement was possible.

Description of Coverage Improvement Program

The projects in the 1970 coverage improvement program can be classified into two types. The first type comprised a group of projects to improve coverage through a variety of means: Developing a better climate of public opinion towards the census by increasing the public's understanding of the importance of the census and its confidentiality, in particular among the population groups that were most poorly enumerated in the past; improving the enumerator's performance in difficult-to-enumerate areas by more intensive training and closer supervision; and similar devices. The second type included a group of projects intended to locate households or individuals that were missed in the initial field activities and add them to the census counts. In some of the most important of these projects, sampling was used and, as a result, only estimates of missed persons and housing units could be added to the counts.

Since the second set of projects operated by adding specific individuals and housing units or estimates of numbers of such

persons and housing units to the census, data are available on their effectiveness, that is, on the number of persons and housing units added by each project. The overall results will be summarized in the next section and discussed individually in later chapters. Obviously, such information does not exist for projects of the first type. We know no way of empirically estimating the effect of an increased public information program, closer enumerator supervision, etc., on a census, which is essentially a one-time operation.

Description of Type 1 Projects

A general description of projects of the first type follows.

Special enumerator efforts in large cities.—In 20 cities that were considered to have unusual enumeration difficulties (essentially the largest ones in the United States), a number of steps were taken to improve the enumerator's performance. They included management of the field offices by Census Bureau professional staff members instead of by locally recruited temporary personnel, fewer workers per supervisor, higher pay rates to the enumerator, smaller enumeration workloads, and assigning each office a workload only about half the normal size.

Assistance centers.—These were places that the public could call or visit for help in filling out census forms. A telephone center was established in each of 20 cities. These centers usually had some bilingual staff members who could help persons speaking another language prevalent in the area. A few walk-in centers also were established. The telephone centers were generally well patronized, but the walk-in areas were not.

Foreign language aids.—Instruction sheets in Spanish were mailed out with the regular questionnaires in some places and distributed in other ways in other selected parts of the United States. In many areas enumerators were furnished with a Spanish translation of the questionnaire for their use in enumeration. Similar aids in Chinese were used in a few areas, though none of these were included in the mailing pieces.

Special public information efforts.—Much of the 1970 publicity was national in scope, but certain special measures were applied only in neighborhoods within the 20 cities mentioned earlier. These included special appeals from blacks and from persons of Spanish heritage working for the Bureau or prominent in the community. Other measures included flyers distributed in the schools, billboards and sound trucks, and special efforts to reach ethnic newspapers and radio stations.

Community education program.—In some of the largest and most difficult-to-enumerate cities, the Bureau hired black and Spanish-speaking specialists who performed the following tasks:

- (a) Addressed local community groups, explaining the need for an accurate census and the benefits that it would provide communities;
- (b) distributed census literature to the local groups; and
- (c) encouraged local groups to pass this message to the kinds of persons who had been poorly covered in past censuses.

Work with black organizations.—The Bureau contacted major black organizations across the country well before the 1970 census to enlist their aid in obtaining maximum coverage. Many of these organizations made valuable contributions in a number of important fields. For example, a large number of them sent

census publicity materials to their affiliates and urged cooperation with the census in obtaining a complete and accurate count.

Description and Effectiveness of Type 2 Projects

Following is a general summary of the methods used in and the effectiveness of the type 2 projects, that is, projects designed to identify persons or housing units missed in the initial field activities. Table A presents data on the increases in 1970 census coverage ascribed to each type 2 project. Descriptions of the type 2 projects, together with data on their contributions to total coverage, are given in later chapters.

The type 2 projects were responsible for the addition of approximately 2.3 million persons (1.1 percent of the total population) and about 450,000 housing units (0.7 of 1 percent of the total housing count). Without this program, there would have been a significant deterioration in population coverage from 1960. With it, there appears to have been a slight improvement in population coverage nationally, with a marked improvement in housing unit coverage, particularly in the South and in the very large cities. (See references 2 and 5.)

Just as important as the absolute level of coverage contributed by these special procedures was their effect on population and housing data distributions. For example, these special procedures tended to increase the coverage completeness for those areas and population subgroups for which census coverage had been poorest in the past. Thus, while these procedures did not completely overcome the coverage problems, they tended to decrease the *differentials* in coverage completeness among areas and among population subgroups. For example, in the past several censuses housing unit coverage in the South region of the United States has been less complete than in the other three major geographic regions. As a result of the special postenumeration Post Office check applied in part of the South region in the 1970 census, coverage differentials among the regions were reduced. (See reference 2.)

The efforts to improve coverage in this type of project can be classified into two broad categories. The first category includes procedures conducted as part of the census field operations which resulted in locating and enumerating persons and housing units that would otherwise have been missed by the census. In this category are the projects described below as the "respondent's report of living quarters at his address," as well as the prec canvass operation, the movers check, and the missed persons campaign. About one-fourth of the persons and one-half of the housing units added by the special coverage improvement procedures were added as a result of these four procedures.

The remaining three-fourths of the added persons and one-half of the added housing units came from the second category of projects, which consists of operations in which postcensus investigations were used to detect deficiencies in census coverage. The population and housing counts for each small area of the United States were adjusted to reflect the results of these checks. The characteristics of persons and housing units added in this manner were those of persons and housing units previously enumerated. In this second category belong the national vacancy check, the postenumeration Post Office check, and the supplemental forms operations.

For more details on the planning, development, and implementation of the coverage improvement program, see reference 3.

Table A. Estimated Additions to the 1970 Census Counts by Procedure

(Detail may not add to totals due to rounding. Sampling error on estimate is shown in parentheses. When no sampling error is shown, data are based on a complete count. The sampling errors shown are a result of the methodology used to derive the estimates for this report and they relate only to these estimates. The actual numbers of persons and housing units added to the census by these procedures are not subject to sampling error)

Source of additions (1)	Estimated number of housing units added (2)	Estimated percent of total U.S. housing unit count (3)	Estimated number of persons added (4)	Estimated percent of total U.S. population count (5)
Total, all procedures.....	448,000	0.7	2,304,000	1.1
Respondent's report of living quarters at his address.....	126,000 (35,000)	0.2	¹ 380,000 (106,000)	0.2
Precanvass operation.....	108,000 (11,400)	0.2	234,000 (25,000)	0.1
Movers check.....	² -	-	15,000 (1,200)	-
Missed persons campaign ³	-	-	-	-
National vacancy check.....	⁴ -	⁴ -	⁵ 1,069,000	0.5
Postenumeration post office check.	174,000	0.3	484,000	0.2
Supplemental forms operation.....	40,000	0.1	122,000	0.1

- Represents zero or rounds to zero.

¹The number of persons added by this procedure was estimated, assuming the average household size inside SMSA's, for each added housing unit.

²A trivial number of housing units was added as a result of the movers check. Persons added to the census by the movers check generally were occupants of housing units already included in the census.

³As later discussions in this report show, no additions to the census counts resulted from this operation.

⁴No housing units were added to the census on a net basis, but the count of occupied housing units increased while the count of vacant housing units decreased by the same amount.

⁵Previous internal memorandums and reports have indicated that approximately 1,075,000 persons were added to the census by the national vacancy check. That number included about 6,000 persons who were attributed to both the national vacancy check and the postenumeration Post Office check; for this report these persons have been attributed to the latter operation only.

Chapter II. Respondent's Report of Living Quarters at His Address

Description

In the census each respondent was asked to mark his household census questionnaire to show the number of living quarters at his address. Item A on the questionnaire was a coverage probe used to identify potentially missed housing units.

A. How many living quarters, occupied and vacant, are at this address?

☐ One

☐ 2 apartments or living quarters

☐ 3 apartments or living quarters

☐ 4 apartments or living quarters

☐ 5 apartments or living quarters

☐ 6 apartments or living quarters

☐ 7 apartments or living quarters

☐ 8 apartments or living quarters

☐ 9 apartments or living quarters

☐ 10 or more apartments or living quarters

☐ This is a mobile home or trailer

If the census had originally listed fewer than 10¹ units at the address and the response to item A exceeded the number of census listings, an enumerator was to follow up to determine if all units at the address were included in the address register. Any housing units found but not already listed were to be enumerated and added to the address register. No followup work was required when the response to item A indicated fewer units than were listed in the census register.

Although item A appeared on the household questionnaires for the entire United States, we were able to estimate its effect only for questionnaires returned by mail. In conventional areas, and at mail-area addresses enumerated by personal visit, item A undoubtedly also helped improve coverage; however, in these cases there is no conclusive way to determine which units were added as a result of item A and which were detected in other ways. It does seem safe to assume, though, that item A was responsible for the addition of considerably more units nationally than we have estimated in this report for the mail-return households.

Results

An estimated 126,000 units in mail areas were added to the census by the item A procedure, representing an improvement in the housing unit count for mail areas of about 0.3 of 1 percent; nationally, the housing unit count was increased by about 0.2 of 1 percent.—Among the households mailing back their census questionnaires, about 1.8 million² addresses were reported to have more units than were previously known to the census. As a result of edit and followup for item A at about 1.2 million of

¹ The categories which a respondent could mark ended with 10+ because pretesting experience had shown that the omission of units within structures rarely happened in structures with more than 10 units. Thus, no followup was deemed necessary for the larger structures.

² The standard error on this estimate is 140,000.

these addresses, units were added to the census at an estimated 105,000 addresses. At some of the addresses more than one unit was added, resulting in a total of 126,000³ added units.

It should be noted that the item A procedure was only one of four coverage improvement procedures being applied in mail areas at about the same time that could add to the census unlisted units in listed addresses. These procedures included an enumerator listing check (precavass check discussed later) for ED's (enumeration districts) located in areas where coverage errors were thought to be severe, Post Office reviews of the initial mailing list to identify and add to the mailing list any unlisted units, the item A check, and a check during editing to identify cases where the housing unit definition may have been incorrectly applied. Theoretically, an unlisted unit in a listed address might have been identified by all four or any combination of these procedures. The above estimate includes only those units *not picked up by any of the other coverage improvement procedures* but which were found and added as a result of the item A procedure.

The payoff rate for item A, one housing unit added for approximately each 10 addresses edited and followed up, was similar to our pretest experiences. For example, in the Cleveland, Ohio, pretest we observed a payoff rate of one added unit for each 12 addresses followed up, and in the Dane County, Wis., dress rehearsal the rate was one added unit for each 10 addresses followed up. There are a number of reasons why the number of units added to the census in mail areas through item A and the overall payoff rate for item A were not higher. First, for some of the addresses there was a failure to correctly edit the item A response or a failure to follow up the edit. (See below.) In some cases the enumerator may have followed up but failed to locate the missing unit. In a number of instances the extra unit(s) the respondent was referring to in his item A response had already been added to the census by one of the other coverage improvement procedures. (See above.) Finally, some of the item A responses may have simply represented response error, or a difference between the respondent and the census register in how many units belonged at a specific address. For example, a respondent may have reported in item A that there were four units at 801 Main St. These may have been listed in the address register but with two at 801 Main St. and two at 801 1/2 Main St. The enumerator would have reconciled this difference during follow-up, and there would have been no missed units to be added to the census for this case.

The full potential coverage improvements from item A were not realized in the 1970 census.—For an estimated 622,000⁴ of the addresses, or about one of three cases, item A was not correctly edited and/or followed up. That is, the editor either failed to note that the item A entry indicated more units at the address than was shown in the census register or, after noting the difference, failed to follow up to determine whether there were additional units at the address.

³ The standard error on this estimate is 35,000.

⁴ The standard error on this estimate is 62,000.

It is unknown how many added units would have resulted from correct application of the item A procedures for these addresses. However, if we assume these cases are similar to the ones followed up, it can be estimated that these incorrectly handled addresses would have yielded on the order of 62,000⁵ additional units.

Source of Data

The estimated number of housing units added by the item A procedure is based on a stratified sample of about 8,000 mail-

⁵The standard error on this estimate is 23,000.

return questionnaires in mail census areas—about 4,000 short forms and 4,000 long forms. Copies were made of questionnaires as they came from mail-return households before any edit or followup by the field staff. The original questionnaires were then returned to the flow of field processing. The copies were reviewed by the evaluation staff to identify cases where the item A procedures applied. The final questionnaires for these cases were then reviewed to determine which cases were correctly identified by the field staff as requiring followup and whether they were actually followed up. Finally, the address registers containing the sample cases were examined to identify units added as a result of application of item A procedures, but not added by the Post Office or prec canvass checks.

Chapter III. Precanvass Operation

Description

From extensive studies done throughout the 1960's it was learned that the compilation of a complete housing list was extremely difficult to achieve in large city areas with concentrations of apartment dwellings where the individual units were poorly identified. In such areas, a special canvass was done in advance of the questionnaire mailout despite the fact that the usual Post Office reviews were to be made of the mailing lists and each respondent would be reporting the number of living quarters at his address via census questionnaire item A. For these areas, the precanvass was an additional attempt to improve the coverage. Even though the number of units likely to be added by this check was expected to be small (relative to the total U.S. population), any additions were presumed to improve the population data for those segments of the population whose census coverage had usually been low.

Those areas which were precanvassed consisted of selected ED's located in the following 17 metropolitan areas:

Baltimore, Md.	Jersey City, N.J.
Boston, Mass.	Los Angeles-Long Beach, Calif.
Buffalo, N.Y.	New York, N.Y.
Chicago, Ill.	Newark, N.J.
Cincinnati, Ohio	Philadelphia, Pa.
Cleveland, Ohio	Pittsburgh, Pa.
Detroit, Mich.	St. Louis, Mo.
Gary-Hammond-East Chicago, Ind.	San Francisco-Oakland, Calif.
Indianapolis, Ind.	

In establishing the areas to be precanvassed, particular efforts were made to include ED's with large numbers of buildings containing several living quarters lacking clearly defined apartment designations. Such buildings frequently had been converted from single-family homes and were often in areas with low quality housing.

Several weeks before the census, enumerators visited each address in the selected ED's to determine the number of separate living quarters contained therein. The number of living quarters found was compared with the number already listed in the census address register. Units detected by the enumerator in excess of the original census listings were added to the register and mail questionnaires were addressed for them.

Results

The precanvass operation substantially reduced housing-unit coverage errors in precanvassed ED's.—The precanvass operation added about 108,000¹ housing units containing about 234,000 persons. These additions represent about 2.3 percent of the housing units in the ED's that were precanvassed. However, because a relatively small portion of the total United States was precanvassed, units added by the precanvass amounted to less

than 0.2 of 1 percent improvement in the total U.S. housing count and only about 0.1 of 1 percent improvement in the national population count.

We recognize that the precanvass operation was only one of four ways in which previously missed units could have been added to the census. Such units could also have been added by the Post Office during their review of the census lists, by the respondent's report of living quarters at his address, and by the check during editing to identify cases where the housing unit definition may have been incorrectly applied. Unfortunately, we do not have evidence on how much overlap there is in the units detected by these various coverage improvement procedures. We plan to investigate this overlap in pretests prior to the 1980 census.

We could not determine the extent to which the Post Office review also would have detected these units found by the precanvass because many of the precanvass discoveries were added to the census lists prior to the postal review. Nevertheless, there is some evidence to support the need for a precanvass operation despite the fact that postal reviews of the census lists were done for these areas. Examination of the structures in which units were added by the precanvass shows that many clearly were not built as apartment buildings but had been converted to such use. It is in these kinds of structures that omissions tend to occur and where even local postmen have difficulty in ascertaining the correct count of housing units. Also, other 1970 census evaluation studies (see reference 2) that measured housing coverage errors revealed that in 1970 some rather large structures containing 30 or more units were missed entirely in areas not precanvassed. Moreover, those errors occurred even though several postal reviews of the census listings had been done in those areas. While this does not necessarily mean that a precanvass would have prevented the errors, a precanvass would have afforded an additional coverage check to pick up these missed buildings.

The precanvass operation is capable of detecting and adding units in excess of those yielded by the item A procedure.—The item A procedure was not applicable to, and thus had no opportunity to detect, about 68,000 of the units added by the precanvass operation. Approximately 33,000 of the units added by the precanvass were at street addresses entirely omitted from the original census address register; an additional 35,000 precanvass additions were at street addresses for which responses to item A indicated 10 or more living quarters, and no followup was required for item A. Of the remaining 40,000 units added by the precanvass operation, about 30,000² were at addresses where households returning census questionnaires by mail reported in item A more units than the census had listed prior to precanvass. As mentioned earlier, since the item A procedure was correctly executed in only about two-thirds of the cases where it applied, we would have expected only about 20,000 of the units added by the precanvass operation (less than one-fifth of the total precanvass additions) to have been added by the item A procedure.

¹ The standard error on this estimate is 11,400.

² The standard error on this estimate is 3,900.

There is no evidence that units added by the prec canvass operation were concentrated disproportionately in small structures.— As discussed earlier, we had expected the prec canvass operation to primarily add units in small structures (with 10 or fewer units), where previous experience had indicated our housing coverage losses were concentrated. The units added by the prec canvass operation in the ED's in the evaluation sample were analyzed by size of structure (number of units in structure) in which the added units occurred. That distribution was compared with a size-of-structure distribution for all renter-occupied units in the cities where the prec canvass operation was conducted. The two distributions were highly similar. For example, about one-half of the units added by prec canvass were in structures with fewer than 10 units, as were about one-half of all renter-occupied units in those cities where the prec canvass operation was conducted.

*There is no evidence that the racial distribution of households added by the prec canvass operation differed from the racial distribution of all households in the prec canvassed cities.—*About 25 percent³ of the households added by the prec canvass operation were of Negro and other races as were all households in cities where the prec canvass operation was carried out.

Source of Data

The estimate of additions to the census attributable to the prec canvass operation is based on a review of the operation results

for a sample of 500 prec canvassed ED's. The sample selection and review were conducted in three stages. In the first stage, a systematic sample (about 3,000 ED's) of all prec canvassed ED's was selected, and the administrative records of the prec canvass operation for the sampled ED's were reviewed to determine the number of units reportedly detected by enumerators in excess of the original address-register listings.

The sample ED's were arranged into strata based on the indicated number of units added by prec canvass, and a stratified systematic subsample consisting of 500 ED's was selected. For these 500 ED's the address registers were examined to determine the number of units which were actually added to the census by the prec canvass operation.

The last step of the analysis consisted of the selection of one-half of those ED's with one or more units added by the prec canvass operation and a review of the census questionnaires for the half-sample of ED's. This review estimated the number and characteristics of occupants of units added by the prec canvass and indicated as well the extent to which responses to item A could have been used to detect those units added by the prec canvass operation.

The data presented on the results of the prec canvass operation are, of course, subject to sampling variability because of the methodology used to develop the estimates. In addition, approximately 7 percent of the prec canvassed ED's were not sampled because the administrative records for these were not available. Data for these ED's are not reflected in the estimates discussed in this chapter.

³The standard error on this estimate is 3.5 percentage points.

Chapter IV. Movers Check

Description

The movers check was an operation designed to improve the count of persons who moved during the census-taking period. Research in pretests leading up to the 1970 census had indicated that persons who move during the census-taking period (a few weeks before April 1 to a few weeks after) are more likely to be missed than persons in the general population. Because the period of enumeration spans several weeks, a person who moves during this period may be missed at both his old and new residences. The enumerator may call and enumerate at his new residence before he moves into it and at his old residence after he has moved out; this would result in population coverage loss as well as the enumeration of both residences as vacant when one was actually occupied. Research associated with the pretests had shown that a record check in conjunction with a followup of persons reporting a change of address to the Post Office during the census-taking period would help to prevent such omissions.

For the 1970 census this procedure was conducted in the same metropolitan areas as the prec canvass. (See chapter III.) The procedure was restricted to these areas because of the administrative problems in attempting to follow through on interstate movers and also because the organizational structure of some census district offices tended to preclude such a clerical operation. In these areas, the Post Office reported to the census the name(s) and old and new addresses for each notification of address change it received between March 1 and May 2. The census district offices then searched the address registers and questionnaires to determine whether the movers had been enumerated. Enumerators followed up movers not found to have been already enumerated.

Results

The movers check was considerably less successful in terms of adding persons than pretest experiences had indicated.—Only 15,000¹ persons were added by the movers check, representing 0.06 of 1 percent of the population of the areas where it was conducted. At the national level the increase was trivial. Using procedures essentially similar to those employed in the 1970 census, movers checks conducted as part of the special pretest censuses of New Haven, Conn., Dane County, Wis., and Trenton, N.J., increased the population count for those areas by about 0.2 of 1 percent. It appears that part of this difference was due to failure to adhere to the record-check specifications. (See below.)

Had all change-of-address reports been processed correctly and completely, the yield of the movers check might have been doubled.—Approximately 210,000 changes of address were reported by the Post Office in the areas where the movers check was conducted. Among these reported movers about 11 percent were actually followed up in the census and about one-third of these cases resulted in added persons. (See table B.) Another 11 percent of the movers should have been followed up by enumera-

tors but were not for a variety of reasons. The misclassification of some movers as "already enumerated" and the failure to complete the clerical phase of the record check are two examples. Assuming a yield of added persons among these cases erroneously not followed up similar to the yield for those actually followed up, the estimated total number of persons that would have been added by the movers operation is 30,000.

Table B. Estimated Results of Census Change-of-Address

Processing

(Data shown as percent of reported address changes)

Category (1)	Percent (2)	Standard error (3)
Total reported.....	100.0	-
Moved to address outside the record check area ¹	40.3	3.6
Movers found to be enumer- ated.....	37.5	4.4
Movers should have been followed up.....	22.2	1.7
Actually followed up in census.....	11.1	1.4
Addresses with added persons.....	3.8	0.8
Erroneously not followed up.....	11.1	0.9

- Represents zero.

¹Also includes some problems in matching movers to census records.

A national movers-check operation, if it were feasible and if it were accurately applied, would probably yield substantial coverage gains.—Only about 210,000 Post Office change-of-address reports were obtained by the Bureau in 1970 for the movers-check operation because we collected them only from selected Post Offices in 17 metropolitan areas. Given the mobility rate of the U.S. population, the number of potential change-of-address reports for a nationally applied movers check might approach 2 to 2 1/2 million (63 million households with a 3- to 4-percent mobility rate over a 2-month period).

Further, because in 1970 we limited the check of movers to parts of 17 metropolitan areas, we did not process about 40 percent of the 210,000 Post Office reports for which the moves were to areas not included in the movers check. (See table B.) In effect, then, we had a theoretical add rate of 30,000 persons (see above) from about 126,000 movers reports which were checked in the 1970 movers operation. Extrapolating from these figures to the 2 to 2 1/2 million potential movers reports that might be checked nationally, the potential number of added persons from a

¹The standard error on this estimate is 1,200.

national movers check correctly applied might be as large as 475,000 to 600,000 persons, or 0.2 to 0.3 of 1 percent of the national population.

Source of Data

The goals of this evaluation were (1) to determine the effectiveness of the movers check, particularly to estimate the number of persons added to the census by that operation, and (2) to review how well the movers-check procedures were followed by the district office staff. All change-of-address reports were

shipped to the Bureau's processing facility where a stratified sample based on the results of the field operations was selected and completely and independently reprocessed. The sample size was about 1,000 address changes. The evaluated, or reprocessed, results were then compared with the census field results.

We originally intended to review the census questionnaires to determine the demographic characteristics of the persons added by the movers check. However, this phase of the evaluation check was canceled when it became apparent that the yield of the movers-check operation, in terms of added persons, was so small that it seemed unlikely we would obtain meaningful results.

Chapter V. Missed Persons Campaign

Description

The missed persons campaign was an effort to improve population coverage by enlisting the cooperation of community and other local organizations and of civic officials to identify persons who thought they had not been counted in the census. The Bureau provided cards captioned, "Please make sure I am counted in the Census," with spaces to enter name, address, sex, race, age, and marital status. These cards were printed in Spanish and Chinese as well as English. The cooperating groups were asked to distribute the cards to persons in casual settings, such as pool-rooms, barbershops, carry-outs, etc. The groups were requested to return completed cards to the local census district offices. These cards were then to be compared with census enumerations and persons previously missed were to be added. Like the precavass and movers check, this program was conducted in the larger metropolitan areas.

Results

No one was added to the census by the missed persons campaign.—Although several hundred thousand cards were available to local groups, only 324 were completed and returned.

The failure of the missed persons campaign can probably be attributed to several factors. The local groups initially expressed their willingness to cooperate, but apparently they lacked the necessary resources to execute an intensive campaign. No funds were provided to them to cover the cost of collecting information on the cards; they had to either absorb the costs of any staff time devoted to the campaign or request volunteers to donate their time. In addition, Census Bureau staff did not have sufficient time to follow up with the groups when it became apparent that very few cards were being completed.

Chapter VI. National Vacancy Check

Background and Description

In pretests conducted prior to the 1970 census, the Bureau had found that occupied units incorrectly reported as vacant were a significant factor in the population undercounts. After the pretest studies, changes were made in census procedures in an attempt to control these errors. Plans had been made to conduct a postcensus evaluation study to measure the extent and distribution of errors and perhaps to gain insights into causes of the errors. However, during the early stages of the 1970 census field enumeration it became apparent that these errors were still a significant problem and that, unless corrective action were taken, serious coverage losses would result.

Since there seemed to be no practical way to identify and obtain questionnaires for all of the misclassified units and still adhere to the time limits and budget established for the census, a sample program was initiated to correct for these errors. The sample program made use of questionnaires and plans that had been set up for the evaluation study on these errors. As in all sample programs, errors could only be estimated, not precisely calculated. However, sample size and procedures were such that for the most significant areas (i.e., States and large cities) it was virtually certain that the program improved the count.¹ Even for areas with relatively small populations, in the great majority of cases the population counts were also improved by this procedure.

A self-weighting sample of 13,546 nonseasonal vacant housing units was selected for revisit. The sample used the 235 primary sampling unit (PSU) design (see reference 4), a subset of the 449-PSU design then in use for the Current Population Survey (CPS). Within each PSU, a systematic sample of ED's was selected, and half the nonseasonal vacant units in the selected ED's were designated for reinterview. About 1,500 ED's were included in the sample, with an average of about nine nonseasonal vacants sampled per ED.

Each sample unit was visited by a Bureau current-program interviewer and an interview was conducted with its residents (or neighbors if the unit was vacant), using form D-910 (see appendix) as the enumeration document. The purpose of the interview was to determine (1) the occupancy status of the unit during the census-taking period, (2) whether the sample housing unit was the usual place of residence of the occupants, and (3) the number of occupants of the unit.

Each completed questionnaire was examined during processing and coded as either occupied or vacant at the time of the census.

¹ For this analysis the count was considered to have been improved by the program if the error after correction was smaller in absolute value than the error before correction. In this context the count was improved when the correction rate was less than twice the error rate before correction. Analyses of the program results showed that the probability was almost 1.00 that the count for the U.S. total and for any region was improved, about 0.85 that the count for any area with a population of 250,000 or more was improved, and about 0.70 that the count for any area with a population of 50,000 to 250,000 was improved.

Since the rules for census enumeration provided that the occupancy status was to reflect the situation on the day of the census enumerator's visit, and because these enumeration days were not known exactly, some ambiguity existed for those units which were vacant for only part of the census period. (The census period in conventional areas was approximately April 1 to May 31; in mail areas it was April 1 to July 31.) A very conservative rule for coding these cases was established: Any unit that *was not* occupied continuously by a single household during the entire census period and was enumerated as vacant in the census was considered to have been correctly classified; any unit that *was* continuously occupied by a single household during the entire census period and was enumerated as vacant was considered to have been incorrectly classified.

One further step was taken to ensure that the estimated error rates would not be overstatements. For all sample units coded as occupied, checks were made to guard against the possibility that the wrong unit has been visited because of poor address identification. Whenever the sample unit was in a multiunit structure, the occupant's name was compared with the names reported in the census for all other units in the building. For one-family homes, if the address was not a specific city-type address, the name was compared with those of occupants of a group of homes shown in the census on either side of the sample unit. A small number of errors were detected and corrected by this device.

The results were tabulated for 12 areas in the United States, comprising the four regions and, within each region, the TAR² areas, other blocked areas, and the remainder of the region. For each area, two estimates were made—the proportion of misclassified units and the average number of persons per misclassified unit. A third derived figure also was calculated for each of the 12 areas, consisting of the proportion of misclassified units multiplied by the ratio of the average number of persons per misclassified unit to the U.S. average number of persons per household. (The ratios were, in all 12 areas, less than 1 because the misclassified housing units tended to be occupied by considerably smaller than average households.) Table D shows the final results of the tabulations.

The results then were used to adjust the census counts as part of the computer processing of the census. From the nonseasonal vacant housing units in each ED a systematic sample was selected, and each sample vacant unit was converted to an occupied unit. This conversion was accomplished by imputing the number and characteristics of occupants in the preceding occupied housing unit into the vacant unit. The rate of conversion conformed to the third set of estimates described above; that is, the error rate for vacant housing units adjusted to reflect the smaller households in misclassified units. (In effect, this adjustment procedure tended to produce the correct expected number of persons at the expense of a small understatement of occupied housing units because it converted fewer units than the number in error.)

² Tape address register (TAR) areas were mail census areas for which the census mailing list consisted of a commercial mailing list generated from a computer tape and updated by three Post Office checks.

Two minor modifications in these rates sometimes were necessary. First, no more than 25 conversions per ED were permitted to guard against unusual situations that might occur occasionally in small areas, and further no conversions were made when an ED consisted entirely of vacant units. For example, an ED may be composed almost entirely of vacant units because of recent construction or because of migration of the population from that area. Such ED's were likely to have been checked closely by crew leaders and others during the field stage of enumeration and were unlikely to need corrections to their population counts of the magnitude that would have been made by the vacancy-check program. Only a handful of ED's were affected by this rule. A second modification was necessary because census data for some states had to be processed before all the field work and final tabulations of the vacancy check were completed. Preliminary estimates of the required rates were used in these cases.

Results

Approximately 1,069,000³ persons, representing about 0.5 of 1 percent of the total population, were added to the count by the national vacancy check.—As table C indicates, the vacancy check added a higher proportion of persons to the West region and a lower proportion of persons to the North Central region than to the other regions.

Table C. Persons Added by the National Vacancy Check by Region

Area	Persons added	Percent of regional population
Total, all regions.....	1,068,882	0.53
Northeast.....	247,680	0.51
North Central.....	258,865	0.46
South.....	348,913	0.56
West.....	213,424	0.61

The national vacancy check detected a misclassification rate of 11.4 percent among units initially enumerated as nonseasonal vacant, with mail areas having a higher error rate than nonmail areas.—Nationally, the vacancy check estimated that over 11 percent of the units initially enumerated as nonseasonal vacant in the census should have been enumerated as occupied. (See table D.) All of these errors can be considered enumerator error. In none of these cases was the enumerator faced with a situation where a move had taken place during the census-taking period. In every case the unit had been occupied by the same household throughout the census-taking period. The enumerator, then, either failed to determine the correct occupancy status for these units or reported them as vacant for some other reasons.

The rate of misclassifying occupied units as vacant was higher in mail-census areas than in areas where the census was con-

ducted by list-enumerate procedures.⁴ In TAR areas the error rate was about 15 percent nationally; outside TAR areas and in other blocked areas, that error rate was about 9 percent. This difference between the two types of areas was fairly consistent across the regions. The difference may be partially due to the occupied-vacant mix in each of the two types of workloads. In mail areas the followup enumerator's assignment typically contained a high proportion of vacant units, especially in those areas where the mail return rate among occupied households was very high. (Overall, the mail return rate for occupied households was close to 90 percent.) In the list-enumerate areas the enumerator's workload consisted of all housing units in an ED with, typically, 10 percent or less vacant units. Due to these mixes the mail area enumerator may have been more prone than the list-enumerate area enumerator to accept a unit as vacant without sufficient probing as to the correct occupancy status. In addition, the mail area enumerator, working from a control list, had to account for each listing in the register. One way to accomplish this for a household with a hostile respondent would be to enumerate the unit as vacant. The list-enumerate enumerator had an additional choice. Since the control list was being prepared during enumeration, the enumerator might choose not to list the household at all.

The increase in the population count due to the national vacancy check is probably somewhat lower than the actual number of persons initially missed in housing units erroneously considered as vacant by the enumerators.—The proportion of units enumerated as nonseasonal vacant which were actually occupied during the census period is probably greater than table D indicates. As mentioned earlier, for the national vacancy check only nonseasonal vacant units occupied by the same household through the entire census period were considered to have been misclassified in the vacancy-check procedures. This conservative rule surely introduced a downward bias in the estimated misclassification rate. For example, a household which moved during the census-taking period may have had both its old and new residences counted as vacant in the census and neither address would have been classified as "enumerated in error" by the vacancy-check study.

Three additional factors caused the number of persons added by the vacancy check to fall below the potential.

First, it was observed that the average household size in the sample units determined to have been misclassified was smaller than the national figure (2.36 persons per household compared with the national average of 3.11). To add approximately the correct number of persons, the proportions of vacant units to be converted to occupied were adjusted downward. (See column 4 of table D.) The magnitude of this adjustment assumed that the method of converting vacant units to occupied units would result in the imputation of average-size households. However, the results indicate that an overadjustment was made since the average household size added was only 2.83 instead of 3.11. The conversion rule involved imputing the number of occupants from the nearest preceding unit, but it appears that on the average occupied households that were physically near vacant units tended to be of smaller size than the national average. The overadjustment of the conversion rates resulted in approximately a 10 percent loss in the potentially added population from the vacancy check;

⁴For this analysis, TAR areas have been considered to represent mail areas since they were 100-percent mail census; areas outside TAR and other blocked areas have been considered to represent list-enumerate procedure areas as that was the procedure used to enumerate the majority of those areas. Other blocked areas, as shown in table D, contain a mixture of units enumerated by mail and list-enumerate procedures. TAR areas contained around 80 percent of the units enumerated by the mail census procedure.

³Previous internal memorandums and reports indicated that approximately 1,075,000 persons were added to the census by the national vacancy check. That number included about 6,000 persons who were attributed to both the national vacancy check and the postenumeration Post Office check; for this report those persons have been ascribed to the latter operation only.

about 100,000 more persons would have been added had this fact been known beforehand.

The second factor arose from the necessity to process many States for the census before all the field work and final tabulations of the vacancy check had been completed. For such States, preliminary estimates of the conversion rates were used, and these estimates tended to be low. About 55,000 additional persons would have been added if the final rates had been employed.

Finally, there were two limitations imposed on the conversion of vacant units to occupied units:

- (1) In every ED containing population, a limit of 25 was set on the total number of vacant units converted to occupied.
- (2) In every ED consisting entirely of vacant units, no conversions were made.

These rules affected only a scattering of ED's, however.

Table D. Reinterview Results and Derived Conversion Rates for the National Vacancy Check

Area	Percent of nonseasonal vacant units misclassified	Standard error	Average household size for misclassified units (persons)	Conversion rate ¹ (percent)
	(1)	(2)	(3)	(4)
U.S. TOTAL				
Total.....	11.4	0.5	2.36	8.5
TAR areas ²	14.8	0.8	2.32	10.5
Other blocked areas...	12.7	1.0	2.37	9.5
All other.....	8.7	0.5	2.39	6.5
NORTHEAST				
Total.....	16.4	1.2	2.45	12.5
TAR areas ²	18.8	2.1	2.43	14.5
Other blocked areas...	16.6	2.6	2.43	12.5
All other.....	13.0	1.7	2.52	10.0
NORTH CENTRAL				
Total.....	10.5	0.7	2.36	7.5
TAR areas ²	15.2	1.4	2.41	11.5
Other blocked areas...	10.5	2.4	2.30	7.5
All other.....	6.9	0.9	2.30	5.0
SOUTH				
Total.....	9.8	0.5	2.36	7.0
TAR areas ²	13.2	1.3	2.18	9.0
Other blocked areas...	10.7	1.3	2.58	8.5
All other.....	8.1	0.6	2.38	6.0
WEST				
Total.....	13.7	1.1	2.27	9.5
TAR areas ²	13.7	1.7	2.27	9.5
Other blocked areas...	18.2	3.3	1.97	11.0
All other.....	12.1	1.6	2.44	9.0

¹The conversion rate is the proportion of nonseasonal vacant units to be converted to occupied units. It is the product of column (1) and the ratio of column (3) to the 1960 average size household in the U.S. (3.2). The rates are rounded to the nearest 0.5 percent.

²Tape address register (TAR) areas were mail census areas for which the census mailing list consisted of a commercial mailing list generated from a computer tape and updated by three Post Office checks.

The conversion rates used in the national vacancy check appear to have compensated for the net field errors in misclassifying occupied units as vacant.—It should be recognized that there were also misclassifications in the census where vacant units were enumerated as occupied. The national vacancy check did not estimate this latter component of the misclassification error so that the net effects of misclassifications were not used as the bases of conversion. However, experience has shown misclassification of vacant units as occupied occurs much less frequently than misclassification of occupied units as vacant. Partially as a result of the use of conservative rules to establish the vacancy conversion rates, the adjustments made by the national vacancy check appear to closely approximate the net errors of misclassification of occupied units. For example, a study carried out after the census for the mail-census areas estimated the net misclassification rate to be about 11 percent (see reference 2), quite close to the conversion rate used in the national vacancy check for

TAR areas (10.5 percent).⁵ Evaluation results on net misclassification error for the list-enumerate areas are not presently available.

Source of Data

The count of persons added by the national vacancy check was maintained by the computer during the conversion of vacant units to occupied units. The figures given in this report consist of these computer counts less 5,641 persons in the South region who were also ascribed as added by the postenumeration Post Office check. (See chapter VII.)

Misclassification rates, average household size for misclassified units, and conversion rates were obtained as an integral part of the vacancy-check procedure discussed earlier in this chapter.

⁵See footnote 4 on page 12.

Chapter VII. Postenumeration Post Office Check

Description

The postenumeration Post Office check was used to improve coverage in those areas of the 16 Southern States enumerated under the conventional¹ census procedure. The check was restricted to conventional areas because the Post Office already had a major role in correcting the address register in mail areas. It was restricted to the South because an analysis of the 1960 census evaluation results revealed that housing-unit coverage in the South was considerably worse than in the rest of the United States.

In areas covered by the postenumeration Post Office check, the enumerators completed an address card for each housing unit listed in the address registers. These cards were forwarded to the Post Office where mail carriers checked the cards against the addresses on their delivery routes. The mail carriers reported to the Census Bureau any address for which no card was received. Those reports were sent to the Census Bureau's processing facility in Jeffersonville, Ind., where the reports of missed addresses were assigned to ED's.

The Census Bureau expected the Post Office reports of missed addresses to duplicate some addresses actually enumerated. Consequently, before any housing units were added to the census, the census records were checked to determine which Post Office reports represented housing units already enumerated. In ED's where the Post Office had reported relatively few missed addresses, the check of the census records was done for a sample of the missed-address reports. For those ED's with many reports of missed addresses (15 or more, representing at least 12 percent of the total listings in the ED), the census records were searched for all addresses reported by the Post Office.

Field followup was conducted for a sample of those addresses not found in the census records.² Current Population Survey interviewers completed a short-form questionnaire for the households unless the households reported that they had been enumerated previously. The actual number of additions to be made for any ED was determined by the number of reports of missed addresses reported by the Post Office for that ED, reduced by a factor which reflected the estimated proportion of those reports representing households already enumerated in the census. That factor represented the match rate to census records as well as the proportion of visited households reporting they had already been enumerated.

¹In conventional census areas, enumerators were responsible for listing all housing units as well as visiting them to obtain the necessary census data. There was no Post Office check of the completeness of the census list of addresses in these areas during the field phase of enumeration. To gain coverage improvement through a Post Office check in these areas, the post-enumeration Post Office check was carried out after the field phase of enumeration was completed.

²To facilitate the field work, the nonmatched addresses selected for field visits were in those areas included in the Bureau's Current Population Survey. For a detailed description of that survey and its sample design, see reference 4.

The addition of persons and housing units to the ED counts was done by the computer which rotated through a set of data consisting of the short-form census questionnaires obtained by visiting a sample of the unmatched addresses and enumerating previously missed households. A review of the characteristics of persons added to the census by this procedure revealed unacceptable distortions of the racial composition for certain small areas where the racial mix was already known. This distortion resulted from using the entire field sample to supply the data for additions made to each small area. It was decided to eliminate the distortions by revising the imputation procedures for 13 of the 16 States. Since the field sample was too small to provide representative data for each small area where imputations were to be made, the approach used was to make additions to an ED by computer replication of enumerated units and their occupants from that ED. Under this procedure, the number of persons added was held constant from the first imputation phase. The number of housing units added was generally altered, however, because both occupied and vacant housing units in an ED were replicated until the desired number of persons had been added.

Results

The postenumeration Post Office check considerably improved coverage in the conventional census areas of the South.— Approximately 484,000 persons and 174,000 housing units were added to the census by the postenumeration Post Office check. This represented an increase of 1.3 percent in the population count for the conventional areas of the South. The persons added comprised about 0.8 of 1 percent of the population of the entire South and 0.2 of 1 percent of the U.S. total.

The proportionate increases in the housing-unit counts were comparable. In conventional areas of the South, the postenumeration Post Office check added 1.4 percent to the housing-unit count. The added housing units represented about 0.8 of 1 percent of the housing-unit count for the entire South and 0.3 of 1 percent of the U.S. total.

An estimated three-fourths of the 500,000 addresses reported as missed by the mail carriers had actually been enumerated.— This figure includes two components. First of all, the match to census records indicated that about 36 percent of the Post Office reports duplicated actual enumerations. (See table E.) Second, during the field visits many occupants of sample addresses not found in the census records reported previous enumeration. Based on these reports, an additional 37 percent of all addresses reported as missed were concluded to have been already enumerated.

We recognized that many reports of previous enumeration by occupants of sample addresses not found in the census records probably represented problems in matching two sets of records. On the other hand, some of these reports may have been erroneous, leading us to exclude some households which should have been added to the census. However, it was deemed preferable to reduce systematically the number of housing units to be added

based on those reports and, thus, be conservative in the number of additions finally made.

Table E. Processing Results for Post Office Reports of Missed Addresses in 16 Southern States

(Data shown as percents of Post Office reports of missed addresses)

Post Office reports of missed addresses	Total, all ED's	High-miss ED's ¹	Low-miss ED's ¹
Total.....	100.0	34.2	65.8
Matched to census records.....	35.8	15.5	20.3
Not matched to census records; field followup.....	64.2	18.7	45.5
Household already enumerated.....	37.0	² (NA)	² (NA)
Household not already enumerated; short-form questionnaire filled..	³ 27.2	² (NA)	² (NA)

NA Not available.

¹A high-miss ED was one with at least 15 Post Office reports of missed addresses representing at least 12 percent of the total listings in the ED; low-miss ED's were all other ED's.

²Originally we had planned to make estimates and process the results separately for the two strata of ED's. Due to problems and errors of allocation of addresses to ED's, the potential efficiency of the stratification was reduced and we concluded the separate processing was of dubious value. Consequently, the results of the field phase from the two strata were combined for determining the final factor to be used to adjust the counts.

³The standard error of this estimate is 0.8 percentage points.

The average household size for occupied housing units in the field sample was somewhat larger than for previously enumerated households.—As described earlier, two separate imputation pro-

cedures were employed to add housing units and persons to the census. Under the first procedure, which used data from the field sample, the average household size for added occupied units was about 3.2 persons. Occupied units added by the second imputation procedure, which replicated characteristics for previously enumerated housing units and their occupants while holding the total number of persons to be added as fixed, contained about 3.0 persons. In effect, then, the number of occupied housing units added by the second imputation phase was slightly higher than in the first phase.

Source of Data

The records of persons and housing units added to the census by the postenumeration Post Office check were maintained by the computer during the replication process. Included in the counts, however, were additions made by the supplemental forms operation as well as a small number of additions made as the result of certain procedures to correct processing errors. The number of persons added by each operation or procedure was determined from the computer counts. The number of added housing units ascribed to each operation was then estimated by applying a ratio of persons added by the operation to the total computer count of added persons against the total computer count of added housing units.

The proportions of missed addresses reported by the Post Office, which were searched for and found in the census records, were computed using figures maintained during the clerical matching process.

Since the search of census records in "low-miss" ED's was limited to sample cases, all estimates based on the results of this search are subject to sampling error.

The overall estimate of the extent to which Post Office reports of missed addresses duplicated actual enumerations was based upon the results of the clerical search of the census records and upon reports of previous enumeration by occupants of field-sample addresses. It is thus subject to sampling error from two sources. First of all, there is the sampling error contributed by the check of census records on a sample basis. In addition, there is the sampling error associated with visiting only a sample of nonmatched addresses. An estimate of these sampling errors is shown in table E. It is important to note, however, that two other types of error, essentially unmeasured, could have affected the estimated rates: clerical errors made during the check of the census records and response errors (pertaining to enumeration status) made during the field-sample interviews.

Chapter VIII. Supplemental Forms Operation

Description

Certain segments of the population—including residents traveling overseas and persons who indicated during special "Were You Counted?" campaigns that they were missed by the census—were not enumerated by the usual census procedures. Special forms, generally termed supplemental forms, were created for such persons to complete so that they would be included in the census.

It was decided the processing efforts should be concentrated in areas where persons listed on supplemental forms represented significant portions of the population. Thus, in most cases, the supplemental forms for an area were processed and persons added only when the total persons on the supplemental forms for an area represented 1 percent or more of the initially enumerated population or when the number of persons included on all supplemental forms for an ED was 50 or greater. For a small number of cases when these additions seemed particularly important for the communities involved, an exception was made and smaller numbers of persons were added.

For those supplemental forms which qualified for processing, the census records were checked to determine the extent to which they included persons already enumerated. The number of persons to be added to each ED was then established, and additions were made by computer replication of enumerated units and their occupants.

Results

The supplemental forms operation increased the total population and housing counts by less than 0.1 of 1 percent.—Approximately 122,000 persons and 40,000 housing units were added to the census by the supplemental forms operation.

As table F shows, the supplemental forms operation had a greater impact on the population count for the West region than for the other major geographic regions.

Table F. Persons Added by the Supplemental Forms Operation by Region

Area	Persons added	Percent of regional population
Total, all regions.....	121,809	0.06
Northeast.....	22,406	0.05
North Central.....	32,732	0.06
South.....	29,549	0.05
West.....	37,122	0.11

Source of Data

The records of persons and housing units added to the census by the supplemental forms operation were maintained by the computer during the replication process. Included in the counts, however, were additions made by the postenumeration Post Office check as well as a small number of additions made as a result of certain procedures to correct processing errors. The number of persons added by each operation or procedure was determined from the computer counts. The number of added housing units ascribed to each operation then was estimated by applying a ratio of persons added by the operation to the total computer count of added persons against the total computer count of added housing units.

Chapter IX. Cost Effectiveness and Future Implications

Only a partial cost-effectiveness analysis can be made of the 1970 census coverage improvement program. About three-fourths of the total budget for this program was accounted for by projects whose effectiveness is essentially nonmeasurable—projects such as the community education program, higher enumerator pay rates for working in difficult areas, etc.

The remaining one-fourth of the budget was spent on the seven projects discussed in chapters II through VIII. For these seven projects combined, the cost of each person added to the census averaged approximately \$1.00. The least expensive project was the national vacancy check for which the cost was about \$0.10 per person. Persons added by the movers check cost the most, about \$20 each. We had expected a higher payoff from the movers check which would have reduced considerably the cost per added person. The cost of locating each person in the remaining procedures was between \$1 and \$2.

Excluding the movers and vacancy checks, the per-person cost of the type 2 projects was not much different from the per-person cost of the entire census. The program operated efficiently, interfering minimally with the other census operations. It made an important contribution to the population count, 1.1 percent.

Some of the details of the program, however, are troublesome and will require intensive analysis and experimentation before decisions are reached on procedures to be used in the 1980 census. In view of the small payoff of the movers check and missed persons campaign, there is no point in repeating them in the same form as 1970. However, both projects were directed toward special segments of the population whose coverage was of particular concern, and they should not be given up lightly. It is possible that changes in procedures and more supervisory attention in the field organization can produce major improvements in the yields of these projects. Such efforts should be investigated before 1980.

A different kind of problem exists for the postenumeration Post Office check and the national vacancy check, which were responsible for most of the measurable improvement in overall coverage. Sampling was used in each of these projects and, in both, the additions to the census were made by replicating characteristics of previously enumerated persons instead of obtaining the characteristics for those actually missed. The procedures were set up this way because the nature of the operations required them to be done after the completion of initial field work, and there was concern that large-scale matching operations and additions to the census after the field work was done would lead to serious delays in processing the census. The fact that the procedures introduced some element of approximation into

population counts for small areas, however, is somewhat disturbing, and the Bureau plans to investigate ways of eliminating the sampling aspects of these programs for the 1980 census. The present thinking at the Bureau is that since the mail techniques worked so well in 1970, they should be used in a much larger portion of the United States in 1980. (See reference 6.) If this is done, the need for a postenumeration Post Office check will be greatly reduced. For the occupied units erroneously enumerated as vacant, the Bureau now has under consideration a number of alternative procedures it might use to prevent these errors or to have these errors corrected during the field phase of enumeration on a unit-by-unit basis. Plans are now being made to pretest these alternatives for potential inclusion of one or more of these in the field enumeration procedures for the 1980 census.

A judgment about the effectiveness of the part of the program that we have characterized as nonmeasurable is, of course, much more subjective. Most of these projects were directed towards improving the entire census, rather than being restricted to coverage. In fact, there is some question whether we could have completed the census at all in some of the larger cities without the higher pay rates, more intensive supervision, etc. However, we recognize our 1970 efforts in this part of the program could be improved upon, and plans are now being made to accomplish this. For example, the Bureau is considering plans to expand the community education program beyond its 1970 scope by staffing more community educators, hiring them earlier in the decennial period, and giving them more extensive training. In addition, a pilot program is currently underway to retain a nucleus of the community education program staff during the intercensal period as a part of a continuing community education program.

There is evidence that the problems of getting complete counts are becoming more intractable under normal census procedures. Previous evaluation studies revealed that in 1960 about half of the missed persons were omitted because the housing units in which they resided were not identified by the census. Other coverage evaluation studies (see references 2 and 5) showed that undercoverage of occupied housing units in 1970 dropped much more sharply than population undercoverage, indicating that a smaller proportion of the population undercount is now associated with missing entire housing units. This happened in spite of the approximately 1 million persons added in the national vacancy check, a group that in 1960 would have been considered part of the within-household misses. (That is, the housing unit was enumerated in the census but we failed to enumerate some or all of the occupants of the household.) It is much more difficult to improve coverage of persons in this category. If any improvements are to be made, they will probably come about from better understanding of and changed attitudes toward the census.

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Appendix

Form D-910, Record of Occupants—Page 1

FORM D-910
(6-5-70)U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUSBUDGET BUREAU NO. 41-S70012
APPROVAL EXPIRES JUNE 30, 1971**RECORD OF OCCUPANTS**
Evaluation of Occupancy Status (E11)
19th Decennial Census — 1970**NOTICE** — Your report to the Census Bureau is confidential by law (Title 13, U.S. Code.) It may be seen only by sworn Census employees and may be used only for statistical purposes.**Section I — IDENTIFICATION AND CONTROL**

1. Address of sample apartment or house

a. House No. and street name or
location description

b. Apartment or location

2. City, town, or place

3. State

4. ED No.

5. Assignment No.

Section II — PRESENT OCCUPANCY STATUS**INTERVIEWER:** Determine whether sample unit is now occupied or vacant. Check appropriate box below and conduct interview specified for the box you check.☐ **NOW OCCUPIED** — Conduct Interview A on page 2.☐ **NOW VACANT** — Conduct Interview B on page 3.**Section III — INTERVIEW CONTROL**

1. Name of interviewer

2. Respondent

a. Name

b. Address

c. Telephone No.

3. Interview results

a. Date

b. Time

(Circle one)

c. Final results

a. m.

☐ Complete

p. m.

☐ Incomplete — Explain →

Remarks

**OFFICE USE
ONLY**

A.

B.

C.

D.

E.

F.


G.

H.

I.

Form D-910, Record of Occupants—Page 2

INTERVIEW A – UNIT NOW OCCUPIED

1. I am . . . from the U.S. Bureau of the Census, here is my identification. We are visiting a sample of addresses in the area to see if anyone was missed in the Census.		A1 – LIST OF PRESENT HOUSEHOLD MEMBERS	
2. What is the name of the head of this household? (Enter first name, middle initial, and last name on line 1 of A1)		1.	(HEAD)
3a. Did you live here on April 1, the day of the Census? <input type="checkbox"/> No – Answer 3b and skip to 4a <input type="checkbox"/> Yes – Skip to 3c		2.	
		3.	
3b. When did you move in?	Month and day	4.	
3c. What are the names of all other persons living here? (Enter names in A1 and continue with 3d.)		5.	
3d. Can you think of any reason why your household would not have been counted here in the Census – for example, were you away on a visit or vacation last April or May? <input type="checkbox"/> Yes – State reason  <input type="checkbox"/> No		6.	
		7.	
		8.	
4a. Is there another address at which you live some of the time? <input type="checkbox"/> Yes – Continue with 4b <input type="checkbox"/> No – Skip to 5		9.	
4b. What is that address? (Give street, city, and state)		10.	
4c. At which address do you live most of the year? <input type="checkbox"/> Sample address <input type="checkbox"/> Other address } Continue with 5 <input type="checkbox"/> 6 months at each address		A2 – LIST OF APRIL 1 HOUSEHOLD MEMBERS <input type="checkbox"/> Same as present	
5. INTERVIEWER CHECK ITEM If present occupant lived here on April 1, check “Same” box in A2 and go to item X on page 3. If present occupant did not live here on April 1, continue with item 6a.		1.	(HEAD)
		2.	
		3.	
		4.	
6a. Did anyone live here on April 1, the day of the Census? <input type="checkbox"/> No – Enter “VAC” on line 1, of A2, and go to item X on page 3. <input type="checkbox"/> Yes – Continue with 6b		5.	
		6.	
6b. What is the name of the head of that household? (Enter first name, middle initial, and last name on line 1 of A2)		7.	
6c. What are the names of all other persons living here on April 1? (Enter names in A2)		8.	
6d. When did they move out?	Month and day	9.	
Go to item X on page 3.		10.	

Form D-910, Record of Occupants—Page 3

INTERVIEW B – UNIT NOW VACANT		
<p>1. I am . . . from the U.S. Bureau of the Census – here is my identification. We are visiting a sample of addresses in the area to see if anyone was missed in the Census.</p>	B – LIST OF APRIL 1 HOUSEHOLD MEMBERS	
<p>2a. Did anyone live at (sample address) on April 1, the day of the Census?</p> <p><input type="checkbox"/> No – Continue with 2b</p> <p><input type="checkbox"/> Yes – Skip to 2c</p>	<p>1. (HEAD)</p>	
<p>2b. How long has (sample address) been vacant? (Specify then go to item X, below.)</p> <p>_____</p>	<p>2.</p>	
<p>2c. What is the name of the head of that household? (Enter first name, middle initial, and last name on line 1 of B.)</p>	<p>3.</p>	
<p>2d. What are the names of all other persons who lived there on April 1? (Enter names in list B and continue with 3.)</p>	<p>4.</p>	
<p>3. Can you think of any reason why that household would not have been counted at that address – for example, were they away on a visit or vacation last April or May?</p> <p><input type="checkbox"/> Yes – State reason → / <input type="checkbox"/> No</p> <p>_____</p>	<p>5.</p>	
<p>4. When did they move out?</p>	<p>6.</p>	
<p>5a. When they lived at (sample address), was there another address at which they also lived some of the time?</p> <p><input type="checkbox"/> No or Don't know – Go to item X, below.</p> <p><input type="checkbox"/> Yes – Continue with 5b</p>	<p>7.</p>	
<p>5b. What is that address? (Give street, city, and state)</p> <p>_____</p>	<p>8.</p>	
<p>5c. At which address did they live most of the year?</p> <p><input type="checkbox"/> Sample address</p> <p><input type="checkbox"/> Other address</p> <p><input type="checkbox"/> 6 months at each address</p>	<p>9.</p>	
<p>Month and day</p>	<p>10.</p>	
<p>Notes</p>		
ITEM X – ASK FOR ALL UNITS		
<p>Is this building intended for year-round use or is it just for use during certain seasons?</p>		
<p><input type="checkbox"/> Year-round <input type="checkbox"/> Seasonal-migratory</p>		
<p>Complete Section III on page 1 and END INTERVIEW</p>		



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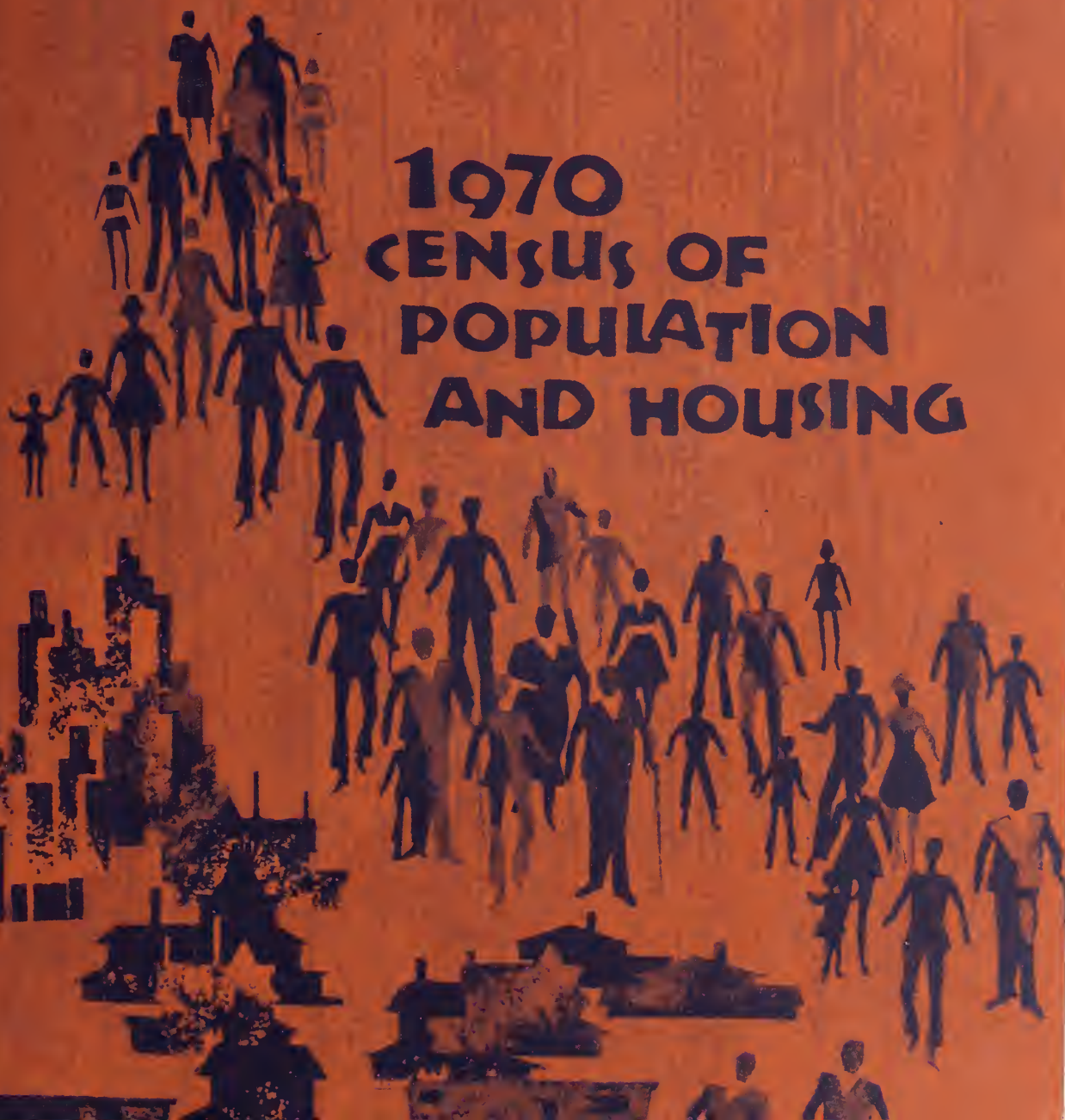
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The Medicare Record Check: An Evaluation of the Coverage of Persons 65 Years of Age and Over in the 1970 Census

PHC(E)-7



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Daniel B. Levine, Associate Director for Demographic Operations

Joseph Waksberg, Associate Director for Statistical
Standards and Methodology

David L. Kaplan, 1970 Census Coordinator

STATISTICAL METHODS DIVISION

Morton Boisen, Chief

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1970 CENSUS OF POPULATION AND HOUSING

Evaluation and Research Program

The Medicare Record Check: An Evaluation of the Coverage of Persons 65 Years of Age and Over in the 1970 Census

Preface

This is one of a series of reports on results of the Evaluation and Research Program of the 1970 Census of Population and Housing. The program is comprised of a variety of studies, each designed to produce data on the accuracy of selected subject matter or on the effectiveness of specific methodological features of the census-taking process. The major findings and results from these studies are published in the PHC(E) series of reports.

This report presents data on the accuracy of the census counts for persons 65 years of age and over, as well as data on the extent of age, sex, and race misclassification in the census for the elderly.

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Chapter I. Background

The 1970 Census count of the population 65 years of age and over is officially estimated to be 1.8 percent too low.¹ Among persons 65 and over, however, there is considerable variation in the estimates of census error for different race-sex groups. The differing estimates quite naturally raise questions about what factors may be operating to vary the census coverage and, thus, point out the need for an understanding of the causes and components of error in the population counts.

The 1970 estimates of net error were derived by the techniques of demographic analysis² and although they are presently considered as the Bureau's best estimates of population coverage error, they have several limitations. They do not tell us, for example, how the census counts were affected by the omission of persons and by the overenumeration (or duplication) of persons. Nor do they indicate how the census counts may be distorted by age misreporting, i.e., by whether some persons 65 and over were counted in younger ages and by whether younger persons were counted as 65 and over. Neither do they reveal the amount of sex and race misreporting in the census. In other words, the demographic analysis estimates conceal the "noise" in the census data and show only the net result of the various errors.

This report describes some of the components of error and presents findings from a record check study in which the names and addresses of a sample of individuals enrolled for Medicare at the time of the 1970 Census were searched for in the census records. The data are based on four independent samples of 3,945 white males, 2,415 white females, 972 males of Negro and other races, and 1,081 females of Negro and other races who were enrolled for hospital and/or medical insurance under the Medicare program. The samples were selected systematically by the Social Security Administration among enrollees residing in 234³ areas covered by the Bureau's 235 PSU design.⁴

Estimates are given on the percent of persons missed by the census, the percent duplicated, and the amount of age, sex, and race misreporting. The coverage error rates were estimated by dividing

the number of missed or duplicated sample persons by the census 100 percent counts. Medicare records were accepted as the standard for measuring census age, sex, and race errors. A detailed description of the sample design and evaluation procedures is given in chapter III.

Before proceeding to the record check results, a few comments are necessary regarding limitations on these data.⁵

First, these estimated error rates are based on sample data and are subject to sampling variability. The standard error of each coverage error rate is shown in the tables. Those standard errors were estimated by assuming simple random sampling and by applying the variance formula for the binomial distribution.

Second, 3.5 percent of the sample persons were not evaluated in this study, i.e., it was not determined whether they were enumerated in the census or were missed. Rarely, if ever, is one able to evaluate all persons selected for a sample survey, and this can be a serious limiting factor on the survey results. In this study, however, the "noninterview" rate is quite low and probably does not distort the inferences drawn. In fact, the missed rate among the unevaluated persons would have to be about six times greater than the rate among the evaluated persons in order for the actual missed rate to be one percentage point higher than observed.

Third, these estimates of error rates were derived from a record of persons enrolled for Medicare. Elderly persons who were ineligible for Medicare or who were otherwise unenrolled are estimated to represent about 2 percent of the enumerated persons 65 and over. The census coverage of those persons is also unknown and the error rates for enrolled persons is assumed to apply equally to those not enrolled.

Fourth, the age comparison was limited to persons 65 and over in Medicare; thus the results do not reflect misreporting of persons actually under 65 who were reported in the Census as 65 and over.

Further, the comparison to the census was usually with the write-in entry on the questionnaire rather than with the FOSDIC marking of age. Errors of FOSDIC miscoding, FOSDIC misreads, or FOSDIC imputations are not reflected in these data. Thus, the comparisons show only response or reporting differences but do not reflect differences due to processing. In particular, the following error is contained within the census 100 percent data but is not reflected in the age comparisons described in this report.

About 103,000 persons were tabulated as centenarians in excess of the probable true number. (While they were not 100 or older, about 10,000 are estimated to be between 65 and 99 years of age.)

¹"Estimates of Coverage of the Population by Sex, Race, and Age in the 1970 Census," Jacob S. Siegel, presented at the 1973 meeting of the Population Association of America.

²The demographic techniques used for estimating error in the 1970 Census counts of the elderly are described in chapter III. Readers who are unfamiliar with that analysis may find it helpful to review chapter III before continuing with this report.

³The area representing the entire State of Alaska is defined by geographic boundaries not identifiable on the Medicare source file; therefore, Alaska is not included in this evaluation.

⁴U.S. Bureau of the Census, "The Current Population Survey, A Report on Methodology," Technical Paper No. 7, U.S. Government Printing Office, Washington, D.C., 1963.

⁵These limitations are also discussed more fully in chapter III.

Chapter II. Results

The demographic estimate of net error referred to earlier show the combined or net effect of omissions, duplications, and age, sex, and race misclassifications in the tabulated census data. The record check study estimates given in this chapter differ from the demographic estimates in three important ways. First, the record check study attempted to break down the net error into its component parts. This decomposition of the net error was done in order to measure the coverage versus content error and also in order to examine possible error causes. Second, although the demographic estimate of net error among persons 65 and older shows the combined or net effect of coverage and content errors in the census counts, those net error estimates for particular age and race groups were made after adjusting the 100 percent census figures to correct for excess centenarians and for race misreporting by some persons of Spanish ancestry. Third, the record check study contained no sample persons under 65 years of age, hence, the extent to which such persons reported their age as 65 or more to the census was not measurable. Due to this difference, it is difficult to compare the net effect of the error components that were measured by the record check study with the net error estimates based on the aggregated Medicare data. Section G of this chapter describes such a comparison, however, for total persons 65 and older and depicts the amount of age over-reporting that would have to exist in the census in order to account for the differences between coverage error and net error.

A. ESTIMATED MISSED RATES FOR PERSONS 65 AND OVER BY AGE, SEX, AND RACE

1. The Missed Rate for All Persons 65 and Over is Estimated To Be 4.9 Percent but Varies for Different Age Groups (table 1).

Examination of the sample data for three age groups suggests that the undercount may be correlated with age. For persons 65-69, an estimated 3.5 percent were missed compared with 5.2 percent for persons 70-74 and 5.8 percent for those 75 and over. The missed rate for persons 75 and over exceeds the rate for those 65-74 and the amount of difference is beyond what might be due to sampling variability at the 95 percent confidence level. Moreover, the trend is consistent for three of the four sex-race groups and is especially pronounced for Negro and other races, females.

2. The Coverage Was Better for Whites Than for Negro and Other Races and the Greatest Undercount Was for Negro and Other Races, Males (table 1).⁶

The 11.0 percent missed rate for Negro and other races is substantially above the 4.4 percent estimate for whites. Similar wide differences were noted for the sex-race groups with an estimated 5.0 percent of the white males missed versus 13.7 percent for Negro and other races, males, and 4.0 percent for white females versus 9.2 percent for Negro and other races, females. For all three age groups, the highest missed rates were observed for males of Negro and other races. By comparison, they were missed at more than three times the rate for white females, about two and one-half times the rate for white males, and about one-third more often than Negro and other races, females.

⁶ Although this is a group which has a high undercount, it also probably has a large number of errors in the other direction, i.e., age misreporting. In fact, the census as published is estimated to have a net overcount for elderly males of Negro and other races.

B. ESTIMATED MISSED RATES FOR PERSONS 65 AND OVER BY GEOGRAPHIC AREAS

1. The Coverage Was Worse in the South Region Than in Other Regions—Probably Due to the Racial Composition of the Regions (table 2).

Among the sample persons who resided in the South region, an estimated 6.8 were missed in 1970 per 100 enumerated, compared to 4.6 in the Northeast, 3.7 in the North Central, and 4.4 in the West.

There appear to be two reasons for the higher missed rate in the South. We have already noted that the missed rate for Negro and other races is much higher than for whites. Since the South had a greater proportion of Negro and other races than all other regions combined (more than one-half were enumerated in the South) one might expect the South to have a higher overall error rate. Thus, even though the missed rates for Negro and other races were consistent across the regions, the Negro and other races rate in the South affected a much larger segment of the older population. We suspect that were another region to assume the racial composition of the South, its overall missed rate would approach that of the South.

A second reason seems to be that there was more difficulty in enumerating the elderly white females in the South. The estimated missed rate for white females in the South is clearly higher than in other regions and the difference is beyond sampling error.

It is difficult to understand the regional coverage differential for white females since there appears to be nothing in the census procedures that would discriminate against the coverage of particular segments of the population. While the South and West were largely enumerated by conventional census procedures and the other regions were largely enumerated by mail, the high undercount for white females was found only in the South.

It seems likely that neither of these factors alone would have resulted in relatively poorer coverage in the South. But the sustained high undercount of the Negro and other races, combined with the underenumeration of the elderly white females were responsible for the higher error rate.

2. Similar Missed Rates Were Observed for Metropolitan and Non-metropolitan Areas and for Central Cities and Suburbs of Metropolitan Areas (table 3).

The sample data that were tabulated for these geographic divisions provided missed rates that are consistent with the total United States and no noticeable differences were observed. The distribution of these essentially equivalent missed rates tends to indicate that a person's likelihood of being missed by the census depends more on the individual's race than on whether or not he lives in a metropolitan area.

3. A Higher Proportion of Misses Seems to Have Occurred in Rural Areas Than in Urban Areas (table 4).

An estimated 5.9 percent of the elderly persons in rural areas were missed compared to 4.6 percent estimated missed in urban areas. The differences between the urban and rural missed rates is too large to be explained as sampling variability. Among the four sex-race groups, urban-rural differences beyond sampling error were observed only for white males, but it should be noted that the missed rates for rural areas are all in the same direction—higher than the urban estimates. The consistency of these data suggests that important differences exist between the two types of areas.

Examination of the data seems to us to indicate that the urban-rural coverage difference is not peculiar to aged people. Rather the urban-rural coverage difference is probably true for most ages due to more complete coverage of housing units in urban areas than in rural areas. The demographic estimates of net error do not provide separate estimates for urban and rural areas, but the evaluation of housing unit coverage in the census indicates that households in rural areas were more frequently missed than those in urban areas. One may be tempted to presume that the coverage difference is associated in some way with the census procedures, since the rural areas were generally enumerated by conventional means and urban areas were usually enumerated by mail. However, this study

provided no evidence that the various census procedures differentially affected the coverage of the elderly.

C. OMISSIONS DUE TO MISSED UNITS AND OMISSIONS WITHIN ENUMERATED HOUSING

In an attempt to shed some light on the nature of the errors, the census records were checked to see if the persons had apparently been missed because their residences were missed, or because they were left off the questionnaires filled for enumerated residences. Those results are shown in table A.

Table A. Distribution of Missed Persons in Missed Residences and Missed Persons in Enumerated Residences for Urban and Rural Areas

(Detail may not add to total due to rounding)

Status of residence (1)	Total United States			Urban			Rural		
	Estimated number (1,000) (2)	Percent (3)	Standard error of rate (4)	Estimated number (1,000) (5)	Percent (6)	Standard error of rate (7)	Estimated number (1,000) (8)	Percent (9)	Standard error of rate (10)
Total missed persons 65 and over	993	100.0	(NA)	673	100.0	(NA)	320	100.0	(NA)
Residence missed in census	371	37.4	2.3	191	28.4	2.5	181	56.7	4.1
Residence enumerated in census	622	62.6	2.3	482	71.6	2.5	139	45.3	4.1

NA Not applicable.

Overall, about five-eighths of the omissions occurred in residences that were enumerated in the census, and about three-fourths of these missed persons were in units enumerated as occupied. Interviews were conducted with these missed persons in an attempt to determine why they had been missed but the efforts, for the most part, produced inconclusive information. Approximately 8 percent of these persons seem to have been missed because the census misclassified their units as vacants. The persons reported that they lived in the units throughout the 3- to 4-month period during which the census was taken and could not recall being away from home on a visit or vacation during that time. Prior to processing, a special census program, the National Vacancy Recheck, was conducted for a sample of vacant units in order to determine what proportion were actually occupied but had been misclassified as vacant during the initial enumeration. On the basis of that program about 10 percent of all enumerated nonseasonal vacant units were changed to occupied during processing. Thus, although the particular record check sample units described here may have been tabulated as vacant, this kind of error was somewhat compensated for by the special census program.

About another 20 percent reported that either they had moved sometime during the census period, or that they might have been staying with relatives or friends part of the time.⁷ The majority (about 70 percent), however, gave no information as to why their names were left off the census questionnaires.

Between the urban and rural areas, opposite situations were found with about five-sevenths of the urban missed occurring within enumerated residences versus only three-sevenths in rural areas. It might have been suspected that the higher incidence of missed

residences for rural areas was merely indicative of the matching difficulties that are ordinarily encountered when attempting to locate rural addresses in census records. But letters were sent to the "missed" persons, inquiring about the correct identification and precise location of their "census residences" and about the names and addresses of others with whom they may have been visiting or staying at the time of the census. Their replies give evidence that all probable census records were searched before classifying them as missed. Moreover, the search of census records was even extended to surrounding enumeration districts when a sample person's residence was not located. (More details about the matching and searching operation are given in chapter III.)

D. NET COVERAGE ERROR RATE

Among the sample persons found to be enumerated in the census, a subsample of approximately one-third were contacted and asked to provide other addresses where they might also have been counted in the census. They were asked for the names and addresses of relatives or friends with whom they might have been visiting or staying around the time of the census, as well as the names and addresses of others who might have considered them as household members and reported them in the census. After a search of the census records for the alternative addresses that were given,⁸ only two sample persons were found to be duplicated in the census. Allowing for sampling error (at the 95 percent confidence level) the maximum amount of overenumeration in the census would be less than one-sixth of 1 percent.

⁷ Note that, in the record check study, we checked out all alternate addresses provided by respondents to verify that they were not enumerated at any address in the census.

⁸ Virtually all of the subsample persons responded to this inquiry.

The responses to those inquiries would be biased if the respondents had been unable or unwilling to furnish alternative addresses, but there is no evidence that this happened and the duplication rate is believed to be negligible. Thus, the extent of overenumeration for persons 65 and over appears to be trivial for the 1970 Census, and the net coverage error rate is approximately equal to the miss rate.

E. RACE AND SEX DISCREPANCIES BETWEEN CENSUS AND MEDICARE RECORDS AND EFFECT ON COVERAGE ESTIMATES

In matching the record check samples to the census, race and sex discrepancies were found between the census and Medicare data for some persons. This section describes the net shift in the census counts of the aged—assuming the Medicare records are correct—and indicates the amount of sex and race misclassification in the census.

Because the race-sex differences were not resolved by contacting the individuals concerned, it is not known for certain whether they reflect errors in the census records, errors in the Medicare data, or errors in both. It is known, however, that subsequent to processing the 100 percent census data (Series B—U.S. Summary of the 1970 Census) it was found that a number of white persons—primarily of Spanish ancestry—had marked their census questionnaires as of a race other than white, Negro, or other specified race. Consequently, they were included in the "Negro and other race" category. During the editing operations that were carried out in tabulating the census sample data (Series C—U.S. Summary of the 1970 Census), an attempt was made to correct these errors and about 21,000 persons 65 and older were shifted from "Negro and other races" to "white." (All census counts cited in this report are the 100 percent, Series B figures.)

With these factors in mind the sex-race misclassifications were examined with respect to their net effect in understating or overstating the census figures for the elderly. Obviously, sex-race comparison was not possible for sample persons who were missed in the census nor for elderly persons not evaluated and persons not enrolled for Medicare.

Table B. Estimated Net Shift in Census Sex-Race Counts of Persons 65 and Over Due to Sex and Race Misreporting

Sex-race	Estimated net shift	Standard error of net shift
(1)	(2)	(3)
Total	(NA)	(NA)
Male	-0.1	0.2
Female	0.0	0.2
White	-0.4	0.1
Male	-0.3	0.2
Female	-0.4	0.2
Negro and other races	4.1	1.2
Male	2.4	1.4
Female	5.5	1.8

NOTE: Based on comparison of census and Medicare sex and race data for Medicare persons enumerated in the census. Persons with sex or race not given in either source were assumed to be agreements between the two sources; thus these data may understate the actual net shift. A net shift expresses the difference between Medicare and census for a sex-race category as a percent of that category in Medicare. A positive net shift indicates the census is higher than Medicare for a given category; a negative estimate indicates the census is lower.

NA Not applicable.

1. Race and Sex Misreporting in the Census Contributed to an Undercount of Elderly White Persons but Tended to Cause an Overcount for Negro and Other Races (table B).

The net effect of the sex-race shift was small for the aged whites (0.3 of 1 percent census undercount for white males and 0.4 of 1 percent census undercount for white females), but because the census figures for Negro and other races are much lower than for whites, the shift has a more pronounced effect (2.4 percent census overcount for males and 5.5 percent overcount for females). Please note, however, that while these estimates of sex and race misreporting relate to the 100 percent census data (the Series B data), part of the error was corrected in tabulating the census sample data (Series C) and the latter are not affected to the extent cited here.

2. For Demographic Analysis, the Proportionate Race Allocation for Medicare Enrollees of Unknown Race Appears to be a Valid Adjustment Technique.

The Medicare records did not show race for a small percent of the enrolled males (2.1 percent) and females (3.4 percent). For demographic analysis, a pro rata race allocation was made to adjust the basic aggregated Medicare figures (see chapter III), and 3.7 percent of the males of unknown race and 7.6 percent of the females were allocated to Negro and other races.

Among the record check samples, 183 males and 275 females had no race given on the Medicare lists but race was reported in the census. When these sample cases were inflated to U.S. level, an estimated 7.1 percent of the males and 6.4 percent of the females were in the census as Negro and other races. Thus, the pro rata allocations that were made in the demographic estimation seem to be an accurate adjustment procedure.

The record check samples contained an additional 17 males and 23 females for whom race was not available in Medicare. Four of these persons (two males and two females) were enumerated in the census but no race was reported. The remaining 15 males and 21 females were not found in the census. For analyses purposes, race was assigned to these persons by one of two methods: (1) their households were found and race was assigned according to the race of their relatives, or (2) race was assigned according to the predominant race for the census enumeration district containing their address. The preponderance of these persons were also assigned as white—only four of the males were classified as Negro and other races and only three of the females were so classified.

If the sample persons for whom race was obtained from the census reports are combined with those for whom race was assigned, 8.4 percent of the males and 6.6 percent of the females were classified as Negro and other races, and the demographic analysis allocations are even closer to the census classifications.

F. ESTIMATES OF AGE MISREPORTING IN THE CENSUS (TABLES 5-8)

Section E described the race and sex classification differences between the Medicare and census records and presented data on the shift in the census counts for race-sex groups if the Medicare data were assumed to be correct.

An examination was also made of the age reporting between the two sets of records in order to gain insight into how age misreporting may affect the demographic estimates for 5-year age groups.

The results of the comparisons suggest that age misreporting in the census for persons 65 and over may be large enough to introduce appreciable distortions in demographic coverage estimates for 5-year age groups. The results show that the age group 75 and over

in the census is understated due to persons 75 and over being reported in younger age groups in the census. Evidence of this bias was found for each of the four sex-race groups studied. The bias was larger for females than for males and larger for Negro and other races than for whites. For example, the understatement in the 75 and over group for females of Negro and other races was on the order of 14 percent (see table 8B; net difference rate of -5.2 divided by a percent in class of 37.7). For Negro and other races, females, there is also evidence of bias from this study for the other two age groups. For Negro and other races, females 70-74, there seems to be an understatement of about 10 percent in the census as compared with Medicare (-3.0 net difference rate divided by 30.5 percent in class; see table 8B), and an overstatement of about 14 percent in the age group 65-69 (4.6 net difference rate divided by 31.9 percent in class).

With such large potential age reporting biases in the data, coverage estimates produced by Medicare for the individual age groups among those 65 and over should be treated as rough approximations, with only the total having reasonable validity. As far as gross errors in the age data are concerned, there seems to be greater inconsistency for Negro and other races than for white. The L-fold Index of Inconsistency⁹ for Negro and other races, males was about 18 percent and for Negro and other races, females about 28 percent. For whites, both sexes, the consistency between the two sets of records was quite high, the L-fold Index of Inconsistency being under 10 percent for both males and females.

These estimates of age misreporting, it should be noted, distort the census figures for particular ages and age groups but not because persons were missed by the census. For example, the census count of persons 65 years of age is distorted to the extent that enumerated persons 65 years old erroneously report themselves to the census as other than that age, and to the extent that persons of other ages report themselves as 65 years of age.

G. THE NET EFFECT OF ESTIMATED ERRORS AND ADJUSTMENTS ON THE FINAL CENSUS COUNT OF PERSONS 65 YEARS OF AGE AND OLDER

The discussion of the Medicare record check results has, until now, pertained to the types of errors that were examined and their respective error rates. We shall now attempt to determine the combined or net effect those errors had on the published 100 percent census figure of the elderly. The reader will note that the estimate of net error is particularly limited because the record check samples contained no persons under 65 years of age, and consequently, provided no direct measure of persons under 65 who may have been included in the census as 65 or older. It is difficult to determine the net effect of the various errors on the separate age-sex-race categories and the net effect is approximated here only for the total population 65 and older. For simplicity, all numbers are rounded to the nearest thousand.

Basis for Adjusting the Census Count	Adjusted Count of Persons 65 and Older
100 percent census count	<u>20,066,000</u>
1. The record check study estimated that about 993,000 elderly persons were missed in the census.	+993,000

⁹ As used in this report, the estimated L-fold index of inconsistency is defined as the ratio of the observed number of response differences in the entire distribution to the number of response differences that would be expected if there was no correlation (no consistency) in the classification of each sample person on two observations. See chapter III for a fuller discussion.

Thus the census count, when adjusted solely for omissions would be about 21 million (other errors and adjustments not yet considered).

21,059,000

- | | |
|--|----------|
| 2. After the census field enumeration special coverage checks were made to identify persons that had been left out of the census: | -170,000 |
| <ul style="list-style-type: none"> - the National Vacancy Recheck in which a national sample of units initially enumerated as vacant was revisited by census enumerators who checked the occupancy status. - the Post Enumeration Post Office Check in which the census lists of households in conventionally enumerated areas (nonmail areas) in the South were reviewed by post offices for omissions. - the Supplemental Forms Operation in which a special census form was made available to persons who believed they had been missed by the census. | |

The number of persons identified by those special checks as having been initially missed was used as the basis for correcting the original census count. The original figures were adjusted during census processing by computer imputation and an estimated 170,000 elderly persons were added to the count. Thus, considering both omissions and imputed persons the census count adjusts to slightly under 21 million persons.

20,889,000

- | | |
|--|-------------------|
| 3. The record check sample estimated that about 12,400 persons 65 and older had been duplicated in the census (no sample persons were found to be enumerated more than twice). This amount should be removed from the cumulative figure. | -12,000 |
| | <u>20,877,000</u> |
| 4. The record check study also estimated that nearly 110,000 persons 65 and over had been included in the census as younger than 65. The corrected count of the elderly should be increased by this amount. | +110,000 |
| | <u>20,987,000</u> |
| 5. Consistency checks made on the tabulated census figures indicated an excess count of centenarians amounting to about 103,000 persons. While those persons were not 100 years of age or over, an estimated 10,000 were between 65 and 99 years of age. Thus, the 100 percent census count contained about 93,000 too many persons in the category 65 and over. | -93,000 |
| | <u>20,894,000</u> |

A further component of the net error is the extent to which other persons younger than 65 were erroneously included in the census as 65 or more. The amount of such error is presently unknown but other census evaluation studies—not yet complete—are expected to provide some information on this. If one now compares the adjusted census count (20,894,000) with the aggregated Medicare figure (20,328,047), the census appears to have an excess of approximately 566,000 elderly persons. The overreporting of age is suspected as a major cause of this difference but we presently do not know whether it is actually due to age misreporting, sampling and nonsampling error associated with estimating coverage and other content errors, errors in compiling and adjusting the Medicare data, or some mixture of these.

Chapter III. Methodology and Limitations of Record Check Data

A. METHODOLOGY

1. Sample Selection

The record check sample was selected by the Social Security Administration in two stages: (1) a sample of counties included in areas used in the Current Population Survey design and (2) a sample of Medicare enrollees in the sample counties. Within the counties, an independent sample of persons was selected systematically for each of the four sex-race groups. The following table shows the number of sample persons in each category as well as the sampling intervals.

Table C. Numbers of Sample Persons and Sampling Intervals for Four Sex-Race Groups

Sex-race (1)	Number of sample persons (2)	Sampling interval (3)
White males	3,945	1 in 1,900
White females	2,415	1 in 4,300
Negro and other races, males	972	1 in 700
Negro and other races, females	1,081	1 in 900

2. Matching to Census Records

Upon receipt of the sample from the Social Security Administration, a worksheet, on which all information relevant to the search of the census records would be recorded, was prepared for each sample person. Next, an attempt was made to allocate each sample address to the proper 1970 Census enumeration district (ED).

Approximately 2,500 sample persons were reported by the Social Security Administration to have rural addresses, which are often difficult to locate in the census records. Therefore, each person having a rural address was sent a letter (form D-821) asking him to describe the precise location of his residence at the time of the census. (A copy of that letter and other principal forms used in the record check study are displayed in the appendix.) He was also asked to correct the address if it was not where he lived during the census. Because the census listings were mailing addresses, and post office rural routes seldom conform to census ED boundaries, these letters proved to be invaluable aids in locating rural addresses among the census listings, or in locating the ED's in which the addresses belonged. Many persons actually sketched their residence location even though they had not been asked to do so. (These letters were also sent to the few sample persons for whom the Social Security Administration had only a custodial address, such as the name and address of a lawyer, bank, or rest home.)

After allocation to ED's the census address registers were searched for the sample addresses. As the addresses were found, the census questionnaires were examined to see if the sample names were

listed. Each sample person whose name or address was not found in the census was sent a letter (form D-823) asking him to:

- correct the address that had been searched for if it was not where he lived during the census,
- report any other address where he was visiting or staying at the time of the census, and
- give any other addresses where he may have been considered part of the household and counted in the census, even though not actually there in April or May of 1970.

Another letter (form D-822) was sent to each person whose exact name and address could not be found in the census but for whom some related name and address was found. This letter contained several questions designed to determine whether or not the similar name and address both referred to the sample person.

After a period of about 3 weeks, people who had not responded to the above letters were sent a second letter, along with form D-824 which again requested the desired information. Finally, persons who did not respond to either letter were contacted by telephone or by personal visit.

When the "unmatched" sample persons had been contacted, and it had been determined that some had moved and left no forwarding address, another attempt was made to reallocate their addresses to the census ED's and to search the census records. When new or alternative addresses had been obtained, these were searched for. If no other addresses were obtained, the sample addresses were reallocated to ED's and searched for by supervisory staff in order to verify the initial search. Finally, two reviews were conducted by professional staff.

- In rural areas, the address search was extended beyond the ED to which it had been allocated and into surrounding ED's as well. Moreover, if the address consisted of a postal route number an effort was made to search the entire route by a sequential check of the census ED's containing any listings for that route. (In any future matching of this type the use of route maps, which may be obtained from the post office, will prove useful.)
- In mail census areas, the Geography Division was asked to examine their records to see if the computer-coding system that was used in the census could have miscoded the addresses into the wrong ED's.

The value of the letters that were sent and of the extensive matching attempts is reflected in the relatively low noninterview rates that are shown in table E.

About one-third of the sample persons were sent form D-825 asking about other addresses where they might have been counted in the census. This was done in order to measure the extent of census duplication and the analysis of the responses to these letters is the basis of the conclusion discussed earlier that the amount of overenumeration in the census was trivial.

3. Statistical Measurements

a. MISSED RATES

All missed rates that are shown in this report are expressed as the estimated number of sample persons that were missed in the census relative to the published census counts. Thus, the rates estimate the number of missed persons per 100 enumerated in the census. These missed rates are not intended to represent the net error in the published census figures, but describe only one component of error—gross omissions. In the estimation, it was assumed that the missed rate among the unevaluated persons (noninterviews in the record check study and persons unenrolled for Medicare) was the same as among evaluated persons. As stated earlier, the number of such persons is small and, thus, this assumption is not considered to be a serious limitation on these results.

b. SAMPLING VARIABILITY

The reader should also take into account that, since the data are based on a sample survey, the rates are subject to sampling variability. The particular sample used in this survey is one of a large number of all possible samples of the same size that could have been selected using the same sample design. Estimates derived from the different samples would differ from each other. The standard error of a survey estimate is a measure of the variation among the estimates from the possible samples and thus is a measure of the precision with which an estimate from a particular sample approximates the average result of all possible samples. To illustrate, if all possible samples were selected, each of these were surveyed under essentially the same conditions, and an estimate and its estimated standard error were constructed from each sample, then—

- (1) approximately two-thirds of the intervals from one standard error below the estimate to one standard error above the estimate would include the average value of all possible samples. We call this interval the two-thirds confidence interval.
- (2) approximately nine-tenths of the intervals from 1.6 standard errors below the estimate to 1.6 standard errors above the estimate would include the average value of all possible samples. We call this interval the 90 percent confidence interval.
- (3) approximately nineteen-twentieths of the intervals from two standard errors below the estimate to two standard errors above the estimate would include the average value of all possible samples. We call this interval the 95 percent confidence interval.
- (4) almost all intervals from three standard errors below the sample estimate to three standard errors above the sample estimate would include the average value of all possible samples.

A measure of this range, or sampling variability, is given in the tables along with each estimated miss rate. Those standard errors are, of course, also estimates and were estimated by assuming simple random sampling and by applying the variance formula for the binomial distribution. On balance, the standard errors approximated through these assumptions are probably a slight understatement of the actual standard errors.

As can be seen from the tables, estimated miss rates were examined for different age-sex-race groups and for several geographic areas. Among the various miss rates observed, tests were made to determine whether the sample data indicated real differences rather than differences that could be due to sampling variability. The tests were based on computed

chi-square values for independent samples. The Yates correction factor was applied in the tests when only one degree of freedom existed, and the null hypotheses assumed no significant differences between classes.

c. RESPONSE ERROR MEASURES

Estimates of age reporting accuracy were computed from entries in the following type table.

Medicare records	Census records		
	In category	Out of category	Total
In category	a	b	np_2
Out of category . .	c	d	nq_2
Total	np_1	nq_1	n

Two response error measures were computed to describe the accuracy of age reporting. The index of inconsistency describes the gross differences between census and Medicare while the net difference rate describes the difference between the two sources in the percent in category. The index of inconsistency is computed as follows:

$$\hat{I} = \frac{b + c}{n(p_1q_2 + p_2q_1)}$$

where: a and d are Medicare and census data that are consistent,
b and c are inconsistent data, and
n is the size of the particular sample.

p_1 and q_1 are, respectively, the proportions of cases that are in and out of the category according to the census, and p_2 and q_2 relate to the same classification according to Medicare.

The index of inconsistency expresses the ratio of the observed number of response differences between two sets of records to the number of response differences that would be expected if there was no correlation in the classification of persons in the two sets of records.

There will be no correlation in the classification for a particular individual when the chance that a second observation will agree with the first is no greater than would be expected if the second observation was obtained from a person selected at random from the total population. In general, the estimated level of the index of inconsistency is interpreted as follows: Indices below 20 indicate a low degree of inconsistency, indices between 20 and 50 indicate a moderate degree of inconsistency, and indices above 50 indicate a high degree of inconsistency. A fuller discussion of the interpretation and uses of the index of inconsistency will be presented in later reports in the PHC(E) series. The response error model and response error measures are presented in a number of Series ER60 reports from the 1960 Census. For distributions with more than two categories an index of inconsistency, the L-fold index, is computed for the entire distribution. The L-fold index is a weighted average of the indices of inconsistency computed for the individual categories.

The net difference rates were computed from the above table as $\frac{c-b}{n}$. A positive value denotes that the proportion in the category is larger in the census and a negative value denotes Medicare is the larger.

B. LIMITATIONS OF THE DATA

The findings presented in this report are subject to a number of limitations. The missed rates and the estimates of age misreporting are, of course, subject to the sampling errors given in the tables. Moreover, since the counties from which these record check samples were selected are a subset of the areas included in the Current Population Survey and were not expressly selected on the basis of the distribution of the aged population, the record check estimated total population 65 and over is also subject to sampling variability. The amount of variability is approximated by comparing the record check estimate of total population to the adjusted Medicare estimate, as shown in table D.

A further limitation on these data is that the estimates pertain only to the elderly who are enrolled for Medicare. Unenrolled persons were excluded from the sample and therefore had no chance of being identified in this study as either missed or enumerated by the census.

The age in census, as shown in these data, are the write-in dates reported on the census questionnaires rather than the ages that were marked in FOSDIC. Thus, they do not reflect the actual tabulated ages that encompassed such errors as mismarked and unreadable FOSDIC entries. Conversely, the race in census, shown in this report, are the FOSDIC marked entries and do not take into account the fact that some white persons erroneously marked the "other" race category on their census questionnaires.

Table D. Comparison of Medicare and Record Check Estimated Population 65 Years and Over, by Race and Sex

(Resident population of the United States)

Race and sex of population 65 and over	Medicare counts interpolated to April 1, 1970	April estimates revised for NA race allocation according to census	April estimates revised for 1-month age discrepancy	April estimates revised to account for sex/race shifts between Medicare and census	April estimates revised to exclude Alaska	Record check estimates	Net difference between Medicare and record check (column 6 - column 7)	Percent difference $\left(\frac{\text{column 8}}{\text{column 6}}\right)(100)$
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
All persons	20,051,093	20,051,093	19,931,541	19,931,541	19,924,654	19,453,399	471,255	2.4
Male	8,354,937	8,354,937	8,299,319	8,293,526	8,289,670	8,131,668	158,002	1.9
Female	11,696,156	11,696,156	11,632,222	11,638,015	11,634,984	11,321,731	313,253	2.7
White	17,915,586	18,441,378	18,331,820	18,266,009	18,261,356	17,764,606	496,750	2.7
Male	7,485,350	7,649,097	7,598,390	7,576,657	7,574,081	7,403,944	170,137	2.2
Female	10,430,236	10,792,281	10,733,430	10,689,352	10,687,275	10,360,662	326,613	3.1
Negro and other races ..	1,564,496	1,609,715	1,599,721	1,665,532	1,663,298	1,688,793	-25,495	-1.5
Male	690,313	705,840	700,929	716,898	715,618	727,724	-12,106	-1.7
Female	874,183	903,875	898,792	948,634	947,680	961,069	-13,389	-1.4
Race unknown	571,012					-	-	-
Male	179,274	(Allocated)	(Allocated)	(Allocated)	(Allocated)	-	-	-
Female	391,738					-	-	-

NOTE:

Adjustment rationale:

Column (2) A linear interpolation was made for the January and July Medicare figures in order to obtain an April estimate because the Medicare file was not summarized for April.

Column (3) The numbers of persons for whom race was not shown on Medicare records were allocated to race categories according to the record check findings.

Column (4) The Medicare estimates were "younged" 1 month, as described for column 6, table F.

Column (5) The April Medicare estimates for race and sex groups were adjusted according to the census distributions since those characteristics were used in the record check samples.

Column (6) Alaskan population 65 and over were excluded from the Medicare estimates because they were not sampled for the record check.

Differences between the Medicare and record check figures are shown in column (8). Most of the difference is attributed to sampling variability. The record check numbers do not include late registrants, as do the Medicare numbers, which could amount to an additional 30,000 persons or more. (Updating of the Medicare records for the demographic analysis indicated about this number of late registrants over a 3-month period, although the number registering each month is not known.)

- Represents zero.

Noninterviews can also introduce an element of bias into the sample results. By their very nature, noninterviews are likely to contain a higher proportion of misses than the population as a whole. For this study the noninterviews were nearly exclusively caused by the failure to find the sample persons enumerated in the census at the Medicare address and the inability to contact those persons in order to obtain another possible census-day residence. Overall, the noninterview rate for this study was 3.5 percent. Rates for specific race-sex groups are shown in table E.

C. COMPILATION OF AGGREGATED MEDICARE DATA

In past censuses the demographic estimates for the population 65+ were believed to be somewhat less accurate than for younger age groups. Since those estimates were basically projections from previous census counts which, themselves, may have been low, cumulative biases from each census caused uncertainties about the true population level for persons 65 and over.

Table E. Results of Record Check and Field Followup for Samples of Medicare Enrollees

(Data shown as numbers of sample persons selected from Medicare files at various rates. The miss rates given in this report are based on the numbers shown on line 2)

Enumeration status (1)	White				Negro and other races			
	Male		Female		Male		Female	
	Number (2)	Percent (3)	Number (4)	Percent (5)	Number (6)	Percent (7)	Number (8)	Percent (9)
Total sample cases	3,945	100.0	2,415	100.0	972	100.0	1,081	100.0
Evaluated	3,816	96.8	2,324	96.4	916	94.4	1,048	97.1
Enumerated	3,638	92.2	2,237	92.7	801	83.0	954	88.9
Missed	178	4.6	87	3.7	115	11.4	94	8.2
Noninterview	129	3.2	91	3.6	56	5.6	33	2.9

In order to evaluate the 1970 Census figures for the elderly, the Medicare data appeared to be the best standards available and, hopefully, would overcome the above problems. Consequently, independent estimates of persons 65 and over were derived by adjusting Social Security Administration figures on persons enrolled for hospital and/or medical insurance under the Medicare system.

The adjustments that were made are shown in table F in order that the reader may gain some understanding of the many facets involved in compiling the Medicare estimates. (A fuller explanation of the adjustments made to the basic Medicare data is given in the 1970 Census evaluation report, PHC(E)-4.)

Table F. Aggregated Medicare Data

(Resident population of the United States)

Age and sex of population (1)	Adjustment to Medicare data					Additions to Medicare data		
	Persons eligible for Medicare on January 1, 1970 (2)	Persons eligible for Medicare on July 1, 1970 (3)	Estimated persons eligible for Medicare on April 1, 1970 (4)	April estimate revised for NA race allocation (5)	April estimate revised for 1-month age discrepancy (6)	Adjusted Medicare plus unenrolled aliens (7)	Adjusted Medicare plus unenrolled federal employees (8)	Adjusted Medicare plus other persons not enrolled (9)
All persons	19,958,296	20,143,891	20,051,093	20,051,093	19,931,541	19,996,579	20,147,526	20,328,047
Male	8,328,936	8,380,939	8,354,937	8,354,937	8,299,319	8,324,187	8,433,819	8,440,046
Female	11,629,360	11,762,952	11,696,156	11,696,156	11,632,222	11,672,392	11,713,707	11,888,001
White	17,837,785	17,993,387	17,915,586	18,441,378	18,331,820	18,387,925	18,509,588	18,608,474
Male	7,467,908	7,502,793	7,485,350	7,649,097	7,598,390	7,620,132	7,708,496	7,708,496
Female	10,369,877	10,490,594	10,430,236	10,792,281	10,733,430	10,767,793	10,801,092	10,899,978
Negro and other races	1,551,121	1,577,871	1,564,496	1,609,715	1,599,721	1,608,654	1,637,938	1,719,573
Male	685,568	695,058	690,313	705,840	700,929	704,055	725,323	731,550
Female	865,553	882,813	874,183	903,875	898,792	902,599	912,615	988,023
Race unknown	569,390	572,633	571,012					
Male	175,460	183,088	179,274	(Allocated)	(Allocated)	(Allocated)	(Allocated)	(Allocated)
Female	393,930	389,545	391,738					

NOTE:

Adjustment rationale:

Column 4 A linear interpolation was made between the January and July figures.

Column 5 The numbers for persons for whom race was not shown on Medicare records were allocated proportionately to race categories.

Column 6 According to the Social Security Act, a person becomes eligible for Medicare on the first day of the month in which his 65th birthday falls. Persons born during April 1905, are, thus, considered by the Social Security Administration to be 65 but would be in the census as 64. To make the Medicare figures comparable to census counts, the Medicare figures were "younged" by 1 month, shifting one-twelfth of each single-age group to the next younger group.

Column 7 An estimated 65,038 aliens 65 and over who resided in the United States for less than 5 continuous years were ineligible for Medicare but were counted in the census. The Medicare figures were adjusted for two categories of civilian immigrants: (1) aliens reported by the Immigration and Naturalization Service and (2) conditional entrants admitted from Cuba and Hong Kong and "refugee-escapees."

Column 8 An estimated 151,000 active and retired federal employees 65 and over were not registered for Medicare.

Column 9 An estimated 181,000 other persons 65 and over were probably not enrolled for Medicare. The estimate is based upon expected sex ratios for the elderly applied to the aggregated Medicare figures.

Table 1. Estimated Gross Missed Rates for Persons 65 and Over by Age, Race, and Sex

(Missed rates shown as estimated number of missed persons divided by number of persons enumerated in the census)

Age	Race				Male				Female									
	Total		White		Negro and other races		Total		White		Negro and other races		Total		White		Negro and other races	
	Missed rate of rate	Stand-ard error of rate	Missed rate of rate	Stand-ard error of rate	Missed rate of rate	Stand-ard error of rate	Missed rate of rate	Stand-ard error of rate	Missed rate of rate	Stand-ard error of rate	Missed rate of rate	Stand-ard error of rate	Missed rate of rate	Stand-ard error of rate	Missed rate of rate	Stand-ard error of rate	Missed rate of rate	Stand-ard error of rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Total persons 65 and over	4.9	0.3	4.4	0.3	11.0	0.7	5.7	0.3	5.0	0.4	13.7	1.2	4.4	0.4	4.0	0.4	9.2	0.9
65-69	3.5	0.4	3.0	0.7	9.5	1.2	4.8	0.5	4.0	0.6	12.6	1.9	2.5	0.5	2.1	0.6	6.7	1.4
70-74	5.2	0.6	4.7	0.6	9.9	1.2	5.7	0.7	4.8	0.7	15.0	2.3	4.8	0.8	4.6	0.9	6.5	1.4
75 and over	5.8	0.5	5.3	0.5	13.4	1.3	6.4	0.6	5.8	0.7	13.6	2.1	5.6	0.7	5.0	0.7	13.3	1.7
Published counts — 1970 Census																		
Total persons 65 and over	20,065,502	18,330,342	6,299,054	1,735,160	8,415,708	7,645,675	3,122,084	2,807,794	2,107,552	2,730,149	2,978,624	2,315,000	2,312,084	2,874,531	2,874,531	2,874,531	2,874,531	2,874,531
65-69	6,991,625	6,299,054	4,982,083	692,571	3,122,084	2,807,794	2,315,000	2,107,552	2,730,149	2,978,624	2,315,000	2,312,084	2,807,794	2,874,531	2,874,531	2,874,531	2,874,531	2,874,531
70-74	5,443,831	4,982,083	4,61,748	580,841	2,978,624	2,730,149	2,315,000	2,107,552	2,730,149	2,978,624	2,315,000	2,312,084	2,807,794	2,874,531	2,874,531	2,874,531	2,874,531	2,874,531
75 and over	7,630,046	7,049,205	7,049,205	580,841	2,978,624	2,730,149	2,315,000	2,107,552	2,730,149	2,978,624	2,315,000	2,312,084	2,807,794	2,874,531	2,874,531	2,874,531	2,874,531	2,874,531

Table 2. Estimated Gross Missed Rates for Persons 65 and Over by Region, Race, and Sex

(Missed rates shown as estimated number of missed persons divided by number of persons enumerated in the census)

Category	Total U.S.		Northeast		North Central		South		West	
	Missed rate	Stand-ard error of rate	Missed rate	Stand-ard error of rate	Missed rate	Stand-ard error of rate	Missed rate	Stand-ard error of rate	Missed rate	Stand-ard error of rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Total persons 65 and over	4.9	0.3	4.6	0.5	3.7	0.4	6.8	0.6	4.4	0.6
White	4.4	0.3	4.2	0.5	3.4	0.5	5.9	0.7	4.0	0.7
Negro and other races	11.0	0.7	12.0	1.9	9.5	1.7	11.1	1.0	11.9	2.6
Male	5.7	0.3	6.8	0.8	4.2	0.6	6.2	0.6	5.2	0.9
Female	4.4	0.4	3.1	0.6	3.3	0.7	7.1	0.9	3.8	0.9
White male	5.0	0.4	6.2	0.8	3.8	0.6	5.0	0.7	5.0	0.9
White female	4.0	0.4	2.9	0.7	3.1	0.7	6.7	1.1	3.3	0.9
Negro and other races, male	13.7	1.2	18.2	3.4	12.8	2.9	13.4	1.6	8.7	3.2
Negro and other races, female	9.2	0.9	7.5	2.1	7.2	2.0	9.4	1.2	14.5	3.9
Published counts — 1970 Census										
Total persons 65 and over	20,065,502		5,199,384		5,727,424		6,042,633		3,096,061	
White	18,330,342		4,926,841		5,423,125		5,071,112		2,909,264	
Negro and other races	1,735,160		272,543		304,299		971,521		186,797	
Male	8,415,708		2,120,496		2,418,585		2,554,507		1,322,120	
Female	11,649,794		3,078,888		3,308,839		3,488,126		1,773,941	
White male	7,645,675		2,003,742		2,280,863		2,132,499		1,228,571	
White female	10,684,667		2,923,099		3,142,262		2,938,612		1,680,693	
Negro and other races, male	770,033		116,754		137,722		422,008		93,549	
Negro and other races, female	965,127		155,789		166,577		549,513		93,248	

Table 3. Estimated Gross Missed Rates for Persons 65 and Over for Metropolitan and Nonmetropolitan Residence, by Race and Sex

(Missed rates shown as estimated number of missed persons divided by number of persons enumerated in the census)

Category	Total U.S.		Metropolitan						Nonmetropolitan	
			Total		In central city		Not in central city			
	Missed rate	Stand-ard error of rate	Missed rate	Stand-ard error of rate	Missed rate	Stand-ard error of rate	Missed rate	Stand-ard error of rate	Missed rate	Stand-ard error of rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Total persons 65 and over	4.9	0.3	4.9	0.3	5.1	0.5	4.7	0.5	4.9	0.5
White	4.4	0.3	4.4	0.4	4.4	0.5	4.4	0.5	4.4	0.5
Negro and other races	11.0	0.7	11.0	0.9	10.7	1.0	11.9	1.8	11.1	1.3
Male	5.7	0.3	5.8	0.4	5.8	0.6	5.7	0.7	5.4	0.6
Female	4.4	0.4	4.3	0.5	4.6	0.6	4.0	0.7	4.6	0.7
White male	5.0	0.4	5.1	0.5	4.9	0.7	5.3	0.7	4.8	0.6
White female	4.0	0.4	3.9	0.5	4.0	0.7	3.7	0.7	4.2	0.7
Negro and other races, male	13.7	1.2	13.5	1.5	13.0	1.7	15.1	3.0	13.9	2.1
Negro and other races, female	9.2	0.9	9.2	1.1	9.1	1.3	9.5	2.3	9.2	1.6
	Published counts — 1970 Census									
Total persons 65 and over	20,065,502									
White	18,330,342									
Negro and other races	1,735,160									
Male	8,415,708		(NA)		(NA)		(NA)		(NA)	
Female	11,649,794									
White male	7,645,675									
White female	10,684,667									
Negro and other races, male	770,033									
Negro and other races, female	965,127									

NA Not available.

Table 4. Estimated Gross Missed Rates for Persons 65 and Over by Race and Sex for Urban and Rural Residence

(Missed rates shown as estimated number of missed persons divided by number of persons enumerated in the census)

Category	Total U.S.		Urban						Rural	
			Total urban		In urbanized area		Outside urbanized area			
	Missed rate	Stand-ard error of rate	Missed rate	Stand-ard error of rate	Missed rate	Stand-ard error of rate	Missed rate	Stand-ard error of rate	Missed rate	Stand-ard error of rate
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Total persons 65 and over	4.9	0.3	4.6	0.3	4.8	0.4	4.0	0.6	5.9	0.6
White	4.4	0.3	4.0	0.3	4.2	0.4	3.5	0.6	5.4	0.6
Negro and other races	11.0	0.7	10.3	0.8	10.7	0.9	9.0	1.6	13.4	1.7
Male	5.7	0.3	5.1	0.4	5.5	0.5	4.2	0.7	6.9	0.7
Female	4.4	0.4	4.2	0.4	4.3	0.5	3.8	0.8	5.1	0.9
White male	5.0	0.4	4.4	0.4	4.7	0.5	3.7	0.7	6.2	0.8
White female	4.0	0.4	3.8	0.5	3.9	1.5	3.4	0.9	4.7	0.9
Negro and other races, male	13.7	1.2	12.8	0.8	13.2	1.5	11.3	2.8	16.1	2.6
Negro and other races, female	9.2	0.9	8.7	1.0	9.0	1.2	7.7	1.9	11.1	2.2
	Published counts — 1970 Census									
Total persons 65 and over	20,065,502		14,631,115		11,105,828		3,525,287		5,434,387	
White	18,330,342		13,309,344		10,049,450		3,259,894		5,020,998	
Negro and other races	1,735,160		1,321,771		1,056,378		265,393		413,389	
Male	8,415,708		5,859,472		4,459,288		1,400,184		2,556,236	
Female	11,649,794		8,771,643		6,646,540		2,125,103		2,878,151	
White male	7,645,675		5,287,155		3,999,225		1,287,930		2,358,520	
White female	10,684,667		8,022,189		6,050,225		1,971,964		2,662,478	
Negro and other races, male	770,033		572,317		460,063		112,254		197,716	
Negro and other races, female	965,127		749,454		596,315		153,139		215,673	

Table 5A. Estimated Age-Reporting Errors for Enumerated Persons 65 and Over, White Males

(Data shown as number of persons sampled from Medicare records at an approximate rate of 1:1900, excluding persons with no age given in census)

Age in Medicare (1)	Age in census				
	Total (2)	Under 65 (3)	65-69 (4)	70-74 (5)	75 and over (6)
Total	3,616	11	1,311	988	1,306
Under 65	(¹)	(¹)	(¹)	(¹)	(¹)
65-69	1,304	7	1,295	2	0
70-74	989	3	15	965	6
75 and over	1,323	1	1	21	1,300

¹ Sample includes no persons with Medicare-reported age under 65.

Table 5B. Indices of Age-Reporting Errors for Persons 65 and Over, White Males

(Expressed as percents)

Age in Medicare (1)	Index of inconsistency (2)	95 percent (2 σ) confidence range (3)	Percent in class, Medicare (4)	Net difference rate (5)	95 percent (2 σ) confidence range (6)
Under 65	(¹)	(¹)	(¹)	(¹)	(¹)
65-69	1.5	1.0 to 2.2	36.1	0.2	-0.1 to 0.5
70-74	3.3	2.4 to 4.4	27.4	0.0	-0.4 to 0.4
75 and over	1.7	1.2 to 2.5	36.6	-0.5	-0.8 to -0.2
L-fold index, all categories	2.3	1.8 to 3.1			

¹ Since this sample includes no persons with Medicare-reported age under 65, no estimates of bias or consistency of responses for the under 65 category can be obtained from this record check study.

**Table 6A. Estimated Age-Reporting Errors for Enumerated Persons 65 and Over,
White Females**

(Data shown as number of persons sampled from Medicare records at an approximate rate of 1:4300, excluding persons with no age given in census)

Age in Medicare (1)	Age in census				
	Total (2)	Under 65 (3)	65-69 (4)	70-74 (5)	75 and over (6)
Total	2,208	11	683	562	952
Under 65 ¹	(¹)	(¹)	(¹)	(¹)	(¹)
65-69	665	7	652	6	0
70-74	553	3	22	520	8
75 and over	990	1	9	36	944

¹ Sample includes no persons with Medicare-reported age under 65.

Table 6B. Indices of Age-Reporting Errors for Persons 65 and Over, White Females

(Expressed as percents)

Age in Medicare (1)	Index of inconsistency (2)	95 percent (2σ) confidence range (3)	Percent in class, Medicare (4)	Net difference rate (5)	95 percent (2σ) confidence range (6)
Under 65	(¹)	(¹)	(¹)	(¹)	(¹)
65-69	4.7	3.5 to 6.3	30.1	0.8	0.2 to 1.4
70-74	9.0	7.1 to 11.3	25.0	0.4	-0.4 to 1.2
75 and over	5.0	3.8 to 6.5	44.8	-1.7	-2.4 to -1.0
L-fold index, all categories	6.4	5.2 to 7.9			

¹ Since this sample includes no persons with Medicare-reported age under 65, no estimates of bias or consistency of responses for the under 65 category can be obtained from this record check study.

Table 7A. Estimated Age-Reporting Errors for Enumerated Persons 65 and Over, Negro and Other Races, Males

(Data shown as numbers of persons sampled from Medicare records at an approximate rate of 1:700, excluding persons with no age given in census)

Age in Medicare (1)	Age in census				
	Total (2)	Under 65 (3)	65-69 (4)	70-74 (5)	75 and over (6)
Total	792	17	312	229	234
Under 65 ¹	(¹)	(¹)	(¹)	(¹)	(¹)
65-69	307	13	286	5	3
70-74	235	1	23	194	16
75 and over	250	2	3	30	215

¹ Sample includes no persons with Medicare-reported age under 65.

Table 7B. Indices of Age-Reporting Errors for Persons 65 and Over, Negro and Other Races, Males

(Expressed as percents)

Age in Medicare (1)	Index of inconsistency (2)	95 percent (2 σ) confidence range (3)	Percent in class, Medicare (4)	Net difference rate (5)	95 percent (2 σ) confidence range (6)
Under 65	(¹)	(¹)	(¹)	(¹)	(¹)
65-69	12.5	9.3 to 16.7	38.8	0.6	-1.1 to 2.4
70-74	23.2	18.4 to 29.1	29.7	-0.8	-3.0 to 1.5
75 and over	16.1	12.2 to 21.1	31.6	-2.0	-3.9 to -0.1
L-fold index, all categories	18.3	15.2 to 22.2			

¹ Since this sample includes no persons with Medicare-reported age under 65, no estimates of bias or consistency of responses for the under 65 category can be obtained from this record check study.

Table 8A. Estimated Age-Reporting Errors for Enumerated Persons 65 and Over, Negro and Other Races, Females

(Data shown as numbers of persons sampled from Medicare records at an approximate rate of 1:900, excluding persons with no age given in census)

Age in Medicare (1)	Age in census				
	Total (2)	Under 65 (3)	65-69 (4)	70-74 (5)	75 and over (6)
Total	932	33	340	256	303
Under 65 ¹	(¹)	(¹)	(¹)	(¹)	(¹)
65-69	297	17	269	10	1
70-74	284	7	51	204	22
75 and over	351	9	20	42	280

¹ Sample includes no persons with Medicare-reported age under 65.

Table 8B. Indices of Age-Reporting Errors for Persons 65 and Over, Negro and Other Races, Females

(Expressed as percents)

Age in Medicare (1)	Index of inconsist- ency (2)	95 percent (2 σ) confidence range (3)	Percent in class, Medicare (4)	Net difference rate (5)	95 percent (2 σ) confidence range (6)
Under 65	(¹)	(¹)	(¹)	(¹)	(¹)
65-69	23.6	19.6 to 28.5	31.9	4.6	2.5 to 6.8
70-74	34.4	29.4 to 40.4	30.5	-3.0	-5.5 to -0.5
75 and over	22.1	18.2 to 26.9	37.7	-5.2	-7.2 to -3.1
L-fold index, all categories	28.3	24.9 to 32.5			

¹ Since this sample includes no persons with Medicare-reported age under 65, no estimates of bias or consistency of responses for the under 65 category can be obtained from this record check study.

APPENDIX. PRINCIPAL FORMS USED IN RECORD CHECK

- Form D-821** This form was mailed to each sample person who had a rural address. Since such addresses are often difficult to locate among the census records, each of these persons was asked to provide information that would enhance finding his (or her) address in the census. The person was also asked to correct the address if it was not where he was living at the time of the 1970 Census.
- Form D-822** This form was mailed to each sample person whose exact name and address could not be found in the census but for whom a related name and address was found. The form contained several questions about whether or not the similar name and address referred to the sample person.
- Form D-823** This form was sent to each sample person whose name or address could not be found in the census. Persons were asked to correct the address if they lived elsewhere at the time of the census, and to give other addresses where they were visiting or staying in April or May of 1970. They were also asked to give the name and address of friends or relatives who might have considered them as household members and reported them in the census, even though the sample persons may not have been there at the time of the census.
- Form D-824** This letter and a copy of one of the above forms, was sent to persons who did not respond to the initial inquiry. (Interviewers made personal visits to persons who did not respond to either of the mailings.)
- Form D-825** This form was mailed to about one-third of the sample persons found to be enumerated in the census. They were asked to give any alternative addresses where they might also have been counted in the census. Responses to this form provided the basis for evaluating the amount of census overenumeration (duplication) among the elderly.

FORM D-821
(4-17-70)U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

ADDRESS LOCATION (E2)

19th Decennial Census - 1970

Control number

NOTICE - Your report to the Census Bureau is confidential by law (Title 13, U.S. Code). It may be seen only by sworn Census Employees and may be used only for statistical purposes. The law also provides that copies retained in your files are immune from legal process.

(Please correct any error in name, address and ZIP code as of April 1, 1970)

Dear Fellow Citizen:

The Bureau of the Census wants to be sure that every person was counted in the 1970 Census in the city, town, or rural area in which he actually lived. The above address we have for you is not an easy one to find on the map. Accordingly, we are asking your help in telling us where it is geographically, so that we can locate it.

The Bureau also wants to be sure the address given above is where you lived about April 1, 1970, and where you were counted in the Census. If we are mistaken, please cross out this address and write in your correct address as of April 1, 1970.

Please answer the questions on the back of this letter and return it in the enclosed self-addressed, postage-paid envelope. If you have corrected the address to where you were living on April 1, 1970, answer the questions for that corrected address. If possible, we would appreciate a reply within three days.

The information you provide the Census Bureau is CONFIDENTIAL by law and may be used only for statistical purposes.

Sincerely,



GEORGE H. BROWN
Director
Bureau of the Census

Enclosure

ADDRESS LOCATION		
1. What is the name (or number) of the road, highway, etc., on which this address is located? (If the address is located on an unnamed road, please give the name of the nearest connecting road, highway, etc.) (For example, "unnamed road connecting with State Highway No. 231.")		
2. What are the names (or numbers) of the nearest named roads which connect with that road on each side of the address?		
3. If your address is in a city or town, please enter the name to the right.	City or town	
4. If your address is not in a city or town, please answer items a, b, and c.	a. Name of nearest city or town	
	b. Approximate distance between your address and that city or town.	Miles
	c. Direction you would travel in going from your address towards the center of that city or town.	Directions (N, S, E, W)
5. Additional information which would help in locating this address		
Name of person completing this form		Date

FORM D-822
(5-21-70)U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUSSIMILAR NAMES
QUESTIONNAIRE
(E2)

19th Decennial Census - 1970

NOTICE - Your report to the Census Bureau is confidential by law (Title 13, U.S. Code). It may be seen only by sworn Census employees and may be used only for statistical purposes. The law also provides that copies retained in your files are immune from legal process.

Control No.

Dear Fellow Citizen:

The Bureau of the Census is checking its data to make sure everyone was counted in the 1970 Census.

During this check, we have found names and addresses which are similar but not identical. We are trying to determine in your case if (1) both of these refer to you and some error such as spelling was made in one of the listings, or (2) the names and addresses refer to two different people, one of whom is you.

Please answer the questions on the reverse of this letter and return it in the enclosed, preaddressed, postage-paid envelope. If possible, we would appreciate a reply within three days.

The information you provide the Census Bureau is confidential by law and may be used only for statistical purposes.

Sincerely,



GEORGE H. BROWN
Director
Bureau of the Census

Enclosure

Continue on reverse side

The similar names and addresses are:

1

Name
Address

2

Name
Address

1. NAME (Mark one)

- a. ☐ Both names refer to me
 b. ☐ Only name No. 1 refers to me
 c. ☐ Only name No. 2 refers to me
 d. ☐ Neither name refers to me

2. ADDRESS (Mark one)

- a. ☐ Both addresses refer to me
 b. ☐ Only address No. 1 refers to me
 c. ☐ Only address No. 2 refers to me
 d. ☐ Neither address refers to me

3. If one (but not both) of the names above refers to you, please mark one of the boxes below and enter the information requested.

The other person is –

- a. ☐ A relative (*Please give relationship, for example son, brother, etc.*) _____
 b. ☐ An acquaintance who is not related to me and who lives at the following address:

 c. ☐ Unknown to me

4. If neither name refers to you but you recognize either or both of the names, please provide the correct address(es)

Name No. 1 lives at:

Number and street	
City	
State	ZIP code

Name No. 2 lives at:

Number and street	
City	
State	ZIP code

Mark here if you do **not** recognize either name ☐

5. The correct spelling of my name is (Please print)

First	Middle	Last
Number and street		
City	State	ZIP code

My correct address is. .

6. Additional comments

FORM D-823
(5-21-70)U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUSCENSUS ADDRESS
QUESTIONNAIRE
(E2)

19th Decennial Census - 1970

NOTICE - Your report to the Census Bureau is confidential by law (Title 13, U.S. Code). It may be seen only by sworn Census Employees and may be used only for statistical purposes. The law also provides that copies retained in your files are immune from legal process.

Control No.

Dear Fellow Citizen:

The Bureau of the Census wants to be sure that every person was counted in the 1970 Census in the city, town, or rural area in which he actually lived. We searched for you in the Census records using the above address, but we did not find your name. We are not sure whether you were left out of the Census or whether we were using the wrong address as the basis for our search.

We shall appreciate your help in order that we may be sure that we have looked at every place in the Census records where you might possibly have been listed. Please answer the questions on the reverse of this letter and return it in the enclosed, preaddressed, postage-paid envelope. If possible, we would appreciate a reply within three days.

The information you provide the Census Bureau is confidential by law and may be used only for statistical purposes.

Sincerely,

GEORGE H. BROWN
Director
Bureau of the Census

Enclosure

Continue on reverse side

1. Were you living or staying anywhere other than at the address shown on the front of this form during April or May, 1970, where you might have been counted in the 1970 Census?

☐ Yes – Please enter the other address(es)

Number and street (or RFD and box No.)	
City	
State	ZIP code

Number and street (or RFD and box No.)	
City	
State	ZIP code

☐ No

2. Is there another address where you may have been considered part of the household and counted in the 1970 Census, even though you were not actually there in April or May, 1970?

☐ Yes – Please enter the other address(es)

Number and street (or RFD and box No.)	
City	
State	ZIP code

Number and street (or RFD and box No.)	
City	
State	ZIP code

☐ No

REMARKS – If any address you have given above does not include street name and house number, we shall appreciate a description of where the address could be located on a map. For example, "Two miles southeast of the town of Damascus, Ohio, on an unnamed dirt road that runs into County Highway No. 259."

Name of person completing this form

Date

<p>FORM D-825 (7-14-70)</p> <p>U.S. DEPARTMENT OF COMMERCE BUREAU OF THE CENSUS</p> <p>ALTERNATE ADDRESS QUESTIONNAIRE (E2)</p> <p>19th Decennial Census - 1970</p>	<p>NOTICE - Your report to the Census Bureau is confidential by law (Title 13, U.S. Code). It may be seen only by sworn Census Employees and may be used only for statistical purposes. The law also provides that copies retained in your files are immune from legal process.</p>
<p>Control No.</p>	


Dear Fellow Citizen:

The Bureau of the Census wants to be sure that every person was counted once and only once in the 1970 Census.

We shall appreciate your help in telling us about every address where you might possibly have been listed in the Census. Please answer the questions on the reverse of this letter and return it in the enclosed, preaddressed, postage-paid envelope. If possible, we would appreciate a reply within three days.

The information you provide the Census Bureau is confidential by law and may be used only for statistical purposes.

Sincerely,



GEORGE H. BROWN
Director
Bureau of the Census

Enclosure

Continue on reverse side

1. In addition to the address shown on the front of this form, are there any other addresses where you might have been reported in the 1970 Census, for example, any place where you or your family stayed during April or May of 1970?

☐ Yes - Please enter the other address(es)

Number and street (or RFD and box No.)	
City	
State	ZIP code

Number and street (or RFD and box No.)	
City	
State	ZIP code

☐ No

2. Sometimes people are reported in the Census by relatives, friends or other persons who know them.

Can you give us the addresses of any persons who do not live with you but who may have reported you in the 1970 Census?

☐ Yes - Please enter the other address(es)

Number and street (or RFD and box No.)	
City	
State	ZIP code

Number and street (or RFD and box No.)	
City	
State	ZIP code

☐ No

REMARKS - If any address you have given above does not include street name and house number, we shall appreciate a description of where the address could be located on a map. For example, "Two miles southeast of the town of Damascus, Ohio, on an unnamed dirt road that runs into County Highway No. 259."

Name of person completing this form

Date



U.S. DEPARTMENT OF COMMERCE
Bureau of the Census
Washington, D.C. 20233

OFFICE OF THE DIRECTOR

D-824 (4-21)

Dear Fellow Citizen:

Recently we wrote to you requesting information needed for a survey we are conducting. We are again writing to you because we have received no reply to our previous letter. Possibly it went astray or was lost. We are enclosing a second copy of the letter which contains a few questions about whether you were counted in the 1970 Census.

If we are to get reliable results, it is necessary that we hear from every person to whom we have written. Please complete the questionnaire and return it in the enclosed self-addressed, postage-paid envelope.

The information you give the Census Bureau on this form will be held confidential. We would appreciate a reply within three days.

Sincerely,

GEORGE H. BROWN
Director
Bureau of the Census

Enclosure

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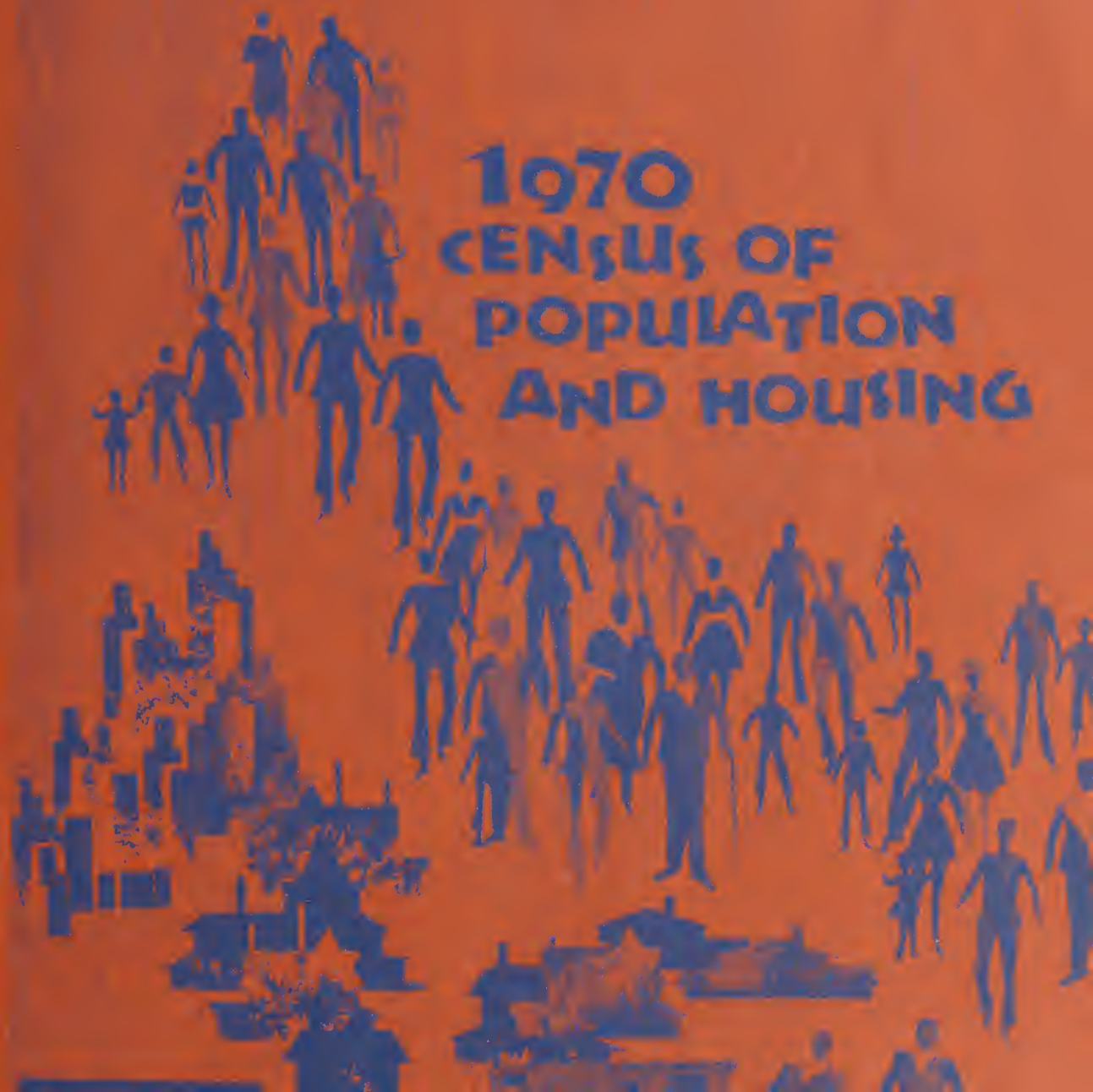
Evaluation and Research Program

Coding Performance in the 1970 Census



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1970 CENSUS OF POPULATION AND HOUSING



U.S. DEPARTMENT
OF COMMERCE
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Statistics Administration
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1970 CENSUS OF POPULATION AND HOUSING

Evaluation and Research Program

Coding Performance in the 1970 Census

Issued April 1974



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PREFACE

This is one of a series of reports from the Evaluation and Research Program of the 1970 Census of Population and Housing. The program comprises a variety of studies, each designed to produce data on the accuracy of selected subject matter or on the effectiveness of specific methodological features of the census-taking process. The major findings and results from these studies are being published in the PHC(E) series of reports as significant phases of the various studies are completed.

This report presents estimates of coding error rates for the three coding operations: General, place of work, and industry and occupation. National estimates are shown for type of coding and for individual questions. Analysis of errors and the distribution of the degree of agreement of three coders in independently assigning codes are provided. Mathematical relationships between production rates and time for all three types of coding and between coding quality and time for industry and occupation coding are presented. Correlations, simple and multiple, between production and quality and four test scores are provided.

CODING PERFORMANCE IN THE 1970 CENSUS

Chapter I. Evaluation of Coding Quality

A. Introduction

In the 1970 decennial census, 80 percent of the Nation's households received short questionnaires asking for limited basic information on population and housing characteristics. A 20-percent sample of households received long questionnaires requesting the same data plus additional detailed information; three-fourths of these households (or 15 percent of total households) received questionnaires designated as the 15-percent form, and the remaining households received the 5-percent form. Individual respondents entered replies either by filling in a small circle beside the appropriate printed response, or by a written description when no printed response was applicable or none was provided because of expected variations. The darkened circles were read by a special FOSDIC (Film Optical Sensing Device for Input to Computers) system which converted them to computer-readable magnetic tape entries.

Over the span of a year, a large clerical force was employed to translate the written descriptions into numeric or alphabetic codes and to enter these codes in FOSDIC form onto the questionnaires (numeric coding), and to ascertain that the direct FOSDIC entries by respondents were consistent with the instructions (edit coding). The coding for the 20-percent sample of households was performed in three separate operations, each with a different staff, as follows:

1. General coding required the numeric and edit coding of responses to a total, over both sample forms, of six housing questions and 14 population questions. (See appendix A.)
2. Place-of-work coding involved numeric coding of responses to one question only on the 15-percent form. (See appendix B.)
3. Industry and occupation coding consisted of numeric and edit coding of responses to three major questions on the 15-percent form and six questions on the 5-percent form. (See appendix C.)

Control procedures monitored the quality of these clerical operations. The poorest clerks were assigned other duties, and unacceptable coding was reworked.

A special sample was selected after all processing had been completed to produce estimates of the coding quality which would be independent of and probably more reliable than the operating data from the quality control system.

B. Sample Design and Selection

In the planning of the sample design, some preliminary work, using estimated costs of selecting Enumeration Districts (ED's) and of selecting and processing questionnaires within ED's, together with estimates of variances within and between ED's, indicated that a sample of about 5,000 questionnaires in 2,500 ED's would be close to the optimum design for the \$10,000 which was available. Actual costs and estimates of variances within and between ED's derived from the evaluation confirmed that the sample design was nearly optimum.

The sample was selected in stages. As counted in the census, there were about 70 million housing units (HU's) in the country in 1970, located in some 249,000 ED's. First a systematic sample of ED's was selected with equal probability at a rate of 1 in 25, leading to a first-stage sample of about 10,000 ED's. A further second-stage sampling of the ED's was carried out with probability proportionate to size, using the total number of HU's as the measure of size. Since the average number of HU's per ED was about 280 and about one-fourth of the first-stage ED's were to be drawn, an interval of 1,120 HU's (4×280) would have produced the desired sample of 2,500 ED's. However, to simplify later sample selection within ED's, it was decided to eliminate from the first-stage sample all ED's with fewer than 10 housing units, since they would probably include only two or three 15-percent questionnaires and frequently no 5-percent questionnaires. To compensate for this reduction, the second-stage selection interval was shortened to 1,000 HU's, yielding a sample of 2,700 ED's. Designating exactly two sample questionnaires in each of these ED's resulted in a final sample of 5,400 HU's.

The selection of two questionnaires in each ED was facilitated by the fact that the sample long questionnaires were separated from the short questionnaires within each ED. From the group of long questionnaires, one at about one-third of the distance from the top and another at about one-third of the distance from the bottom were selected. (With respect to the subject matter of this study, questionnaires were considered to be essentially randomly distributed within ED's; the cost of drawing the sample with random numbers and exact counting would have been excessive.) In the first ED, and every other one thereafter, two 15-percent questionnaires were specified for the sample. If a 5-percent questionnaire was drawn, the first 15-percent questionnaire following it was substituted. In the second ED, and every other one thereafter, one 5-percent and

one 15-percent questionnaire, in that sequence, were selected by drawing the first questionnaire, noting its type, then continuing to substitute the next questionnaire (if necessary) until a 5-percent type was found; the same procedure was followed to draw the second (a 15-percent) questionnaire. See appendix D for a fuller description of sample design and appendix E for estimators.

C. Methodology

The questionnaires were copied photographically with the assigned production codes screened out. Using these photographic copies, clerks with coding experience in the 1970 decennial census determined the appropriate codes and entered them on a separate coding form. A second set of clerical coders repeated the coding process, using the same questionnaire copy, and entered the codes on a second coding form. Coding was independent since neither set of coders had any knowledge of the production code or of the codes assigned by the other set. These two codes and the production code were compared, and a code was considered to be in error if it did not agree with at least one of the other two codes. (This was the same operational standard used in the quality control of coding for the 1960 decennial census.) Three-way differences were adjudicated dependently (with knowledge of all three assigned codes) by coding experts in the Population Division. The error rate, both for individual codes and groups of codes, is the ratio of the number of times the production code or group was considered to be in error, by either the operational standard or the adjudication process, to the total number of times that code or group was assigned by either the production coder or the respondent.

D. Limitations of Results

The procedure used to determine whether a code was correct (agreement with at least one other assigned code) was itself subject to errors. For example, if either recoder made exactly the same mistake as the production coder, the error was not detected. The effect of this situation on error estimates was not evaluated in this study, but previous investigations of similar operations indicated that it was not serious. [2] On the other hand, the use by recoders of poor copies of questionnaires, different reference materials, or revised instructions could have inflated the error rate estimates. This situation actually occurred in place-of-work coding, but all differences classed as coder error by the two-out-of-three rule were adjudicated, and the estimates presented in this publication reflect this adjudication.

Approximately 5 percent of the data used elsewhere in this study were omitted from the weekly coding results since the date of coding could not be determined in all instances. This omission had little effect on the final cumulative error rates, but its effect on weekly estimates is not known.

E. General Coding Quality Results

Background

In the 1960 decennial census, general coding required only the assignment of numeric codes to written responses for nine population characteristics and place-of-work designations, as compared with the assignment of numeric codes and the editing of responses for 20 housing and population questions in the 1970 census. (About 78 percent of the responses required editing only.)

Quality Estimates

The estimated outgoing error rate over all general coding questions is 0.73 percent. The standard error, a measurement of sampling variability, is 0.04 percentage points. (See appendix E for computational formulas.)

The estimated error rates for individual questions ranged from 0.1 percent for question 41b on income to 5.5 percent for question 19b on migration. Table I.1 gives the error rates and standard errors for all questions.

The error rate for numeric coding was 2.6 percent; errors of this type accounted for approximately 77 percent of the total errors in general coding. Numeric coding error rates for individual questions can be found in table I.2.

The error rate for edit coding was 0.21 percent. The highest estimated edit coding error rate, 0.8 percent, was for question a5, the check of the FOSDIC coding of the address serial number by field personnel; other estimates may be found in table I.3.

About one-fourth of all errors resulted from failure to assign any code. In edit coding, the failure to assign codes was due to omissions by respondents not detected by the production coders; in numeric coding failure to assign codes could be attributed both to production coders and production referral clerks. Although sample sizes are too small to make meaningful inferences about all individual questions, table I.4 gives the distribution of errors by type for each question.

Although the sample was designed to produce estimates at the national level, regional estimates of error rates and standard errors have been computed in table I.5. There was no region with an estimated error rate high enough to be considered a serious coding problem. The estimate of the range of error levels by region (excluding Puerto Rico, which is not a census region), or the absolute difference in percent between the highest and lowest regional error rates, is 0.30 percent; the 95-percent confidence interval on this estimate is from 0.01 percent to 0.59 percent. (See appendix F for interpretation and methods.)

Weekly and cumulative error rates are provided in table I.6; no marked learning trend is exhibited.

Approximately 98 percent of the code comparisons reflected complete agreement between the codes assigned by the two recoders and the code on the production questionnaire. Less than 1 percent of the comparisons resulted in all three codes being different. Table I.7 breaks down the code comparisons by numeric and edit code assignments.

F. Place-of-Work Coding Quality Results

Background

The question on place of work was asked for the first time in the 1960 decennial census. In the sample households, questions were asked for all persons 14 years old and over who were employed and at work in the week prior to the census as to the city (whether inside or outside city limits), county, and State of their place of work. General coders assigned 4-digit numeric codes to these responses. In 1970, on the 15-percent forms only, the question on place of work was again asked for the same age group of persons, but two additional pieces of information were requested: street address and ZIP code. (See appendix B.)

This was the first large-scale experience in coding place of work to this detail. The place-of-work coders assigned a 16-digit code to the response when the residence and place of work were both in a standard metropolitan statistical area (SMSA) and the place of work was listed in the Address Coding Guide; otherwise, a 10-digit code was assigned. The 16-digit code included a 5-digit ZIP code, a 5-digit street name code, and a 6-digit structure number. The 10-digit code was composed of a 5-digit ZIP code or 00000 (living or working outside of the SMSA or place of work undetermined) and a 5-digit Universal Area Code (UAC) or 99999 (place of work undetermined).

Quality Estimates

The estimated outgoing error rate for coding place of work is 9.9 percent with a standard error of 0.49 percentage points. Approximately 14 percent of the errors (1.5 percent of the total codes) resulted from failure by production coders and production referral clerks to assign any code. Table I.8 shows the distribution of errors for each correct code type.

When a 10-digit code was considered to be the correct code type, over 90 percent of the errors were caused by incorrectly assigning either a ZIP code or a UAC code, but not both. Approximately 60 percent of the errors in 16-digit codes were the result of an error in only one portion of the code, i.e., an incorrect ZIP code, street name code, or structure number. Table I.9 gives the distribution for all types of errors.

The sample was designed to produce estimates at the national level, but regional estimates of quality and standard errors are presented in table I.10. Differences in error rates between regions did not appear important in terms of the coding operation. The estimate of the range of error levels by region (excluding Puerto Rico) is 1.9 percent; the 95-percent confidence interval on this estimate is from zero to 6.4 percent. (See appendix F for interpretation and methods.)

The three codes were in agreement (three-way agreements) for approximately 69 percent of the responses; fewer than 5 percent of the responses led to different codes being assigned. Table I.11 gives the distribution of code comparisons by correct code type. The distribution of error rates by week coded is not provided because of the small sample size.

G. Industry and Occupation Coding Quality Results

Background

In the 1960 decennial census, information was requested for all persons 14 years old and over in the sample households on the last job held since 1950. Three-digit numeric or single alphabetic codes were assigned to the written responses on industry and occupation, and class of worker was edited for the response entered as a FOSDIC code. There were 149 industry codes in 12 major groups and 296 occupation codes in 11 major groups. In the 1970 decennial census, the same questions as in 1960 were asked for the same age group of persons in all sample households about the last job held since 1960, with a further question on industry and two more questions on occupation. (See appendix C.) Additionally, on 5-percent forms only, less detailed information was asked for the same age group on the job held in April 1965. The coding structure was more detailed than in 1960, with 215 industry codes in 12 major groups and 417 occupation codes in 12 major groups.

Quality Estimates and Other Measures

The estimated error rate for coding industry, occupation, and class of worker was 8.9 percent with a standard error of 0.21 percentage points. Table I.12 provides estimates of error rates and standard errors by type of coding and specific question.

Approximately 19 percent of the errors (1.7 percent of the responses) resulted from failure to assign any code. This problem was more serious for questions occurring only on the 5-percent form; an estimated 94 percent of the errors in coding item 38c were of this type. Since it was the responsibility of the respondent to enter this FOSDIC code, 8.9 percent (from tables I.12 and I.13, $(109/1220) \times 100 = 8.93$ percent) also represents a lower bound on the nonresponse rate for this question. An analysis of coder errors for other questions is shown in table I.13.

The distribution of error rates and standard errors for census regions and Puerto Rico are in table I.14. (As noted earlier, the sample was designed for national level estimates.) Differences in error rates between regions did not appear important in terms of the coding operation. The estimate of the range of error levels by region (excluding Puerto Rico) is 1.0 percent; the 95-percent confidence interval on this estimate is from zero to 2.4 percent. (See appendix F for interpretation and methods.)

The weekly error rates in table I.15 show no obvious pattern, partly due to the small sample sizes. Hyperbolic, exponential, and linear curves fit the cumulative data for the last 50 weeks of coding about equally well (index of determination approximately 0.60). (Coding during the first 4 weeks was excluded since this coding was performed by supervisors and a small number of clerks under close supervision in a nonproduction environment.) The trend was slightly downward with a slope of -0.0039 for the linear curve.

The three codes were in agreement on approximately 79 percent of the questions. The codes disagreed completely in 2.4 percent of the questions (three-way disagreements), and less than 4.0 percent of these questions $([25/(646+25)] \times 100 = 3.7$ percent) were coded by the expert to a code other than one already assigned. Table I.16 provides the details of these code comparisons.

The distribution of errors (computed on an individual code basis) within major groups can be found in table I.17 for industry question 33 and in table I.18 for occupation question 34. The major industry groups with highest estimated error rates were business and repair services, 17.3 percent, and wholesale trade, 17.1 percent. The major occupation groups with highest estimated error rates were laborers, except farm, 19.7 percent, and managers and administrators, except farm, 18.0 percent. Approximating the variance of the estimate by $\frac{pq}{n}$ for each estimate, the chances are 95 out of 100 that the error rates of these outlier groups, determined by a complete census using the same procedures, would be different from the census equivalent error rates of the other groups.

Error rate figures are also shown in the last three columns of tables I.17 and I.18 for each major group with those cases omitted where either no production code or an inadmissible code was assigned, since both of these situations include errors unrelated to the strict coding process. Blank codes could result from referrals which never reached the referral unit for a variety of reasons (misrouting, bypassing when on-the-spot referrals

were delayed, or instructions to skip referral when the number of referrals in an ED was below a stated tolerance). Inadmissible codes essentially reflect attempts to code from memory or reflect errors made while transcribing numbers from coding books to FOSDIC entries. Even considering these omissions, the same two industry groups and the same two occupation groups still had the highest error rates with the same confidence as stated previously. Overall error rates, however, were reduced slightly by the omissions.

Although the sample was not intended to produce estimates of the patterns of codes substituted in error for a given correct code, limited data were available on the distribution of major groups assigned in production for each correct major group. Omitting all cases where the correct code was no code, or the production code was either no code or an inadmissible assigned code, the data were arranged as in table I.19 for industry question 33 and as in table I.20 for occupation question 34. The off-diagonal cells represent cases where the correct code and the production code were not in the same major groups; cells along the diagonal include within-group errors.

Because most information on occupation and industry is published at the major group level, the major group error rate is in many respects even more important than the individual code error rate. Group error rates determined from tables I.19 and I.20 are given in table I.21. Comparison of this table with the same cases in the last three columns of tables I.17 and I.18 shows that the overall group error rates for industry and occupation were 3.7 percent and 6.1 percent, respectively, compared with 7.4 percent and 11.5 percent at the individual code level. The total industry/occupation group error rate was 4.9 percent against the total individual code rate (on a comparable basis) of 9.5 percent. It is worth noting that most of the coding errors at the individual code level were outside the major group which included the code. Put another way, reducing the number of coding classes from 215 to 12 for industry and from 417 to 12 for occupation eliminated fewer than half of the errors. These results suggest that a review of the coding structure and procedures with the objective of reducing coding errors outside the major group might provide significant benefits at the publication level. The two industry groups and the two occupation groups with the highest group error rates

were the same as the groups with the highest individual code error rates.

A measure of possible bias between the production code major group and the correct code major group may be obtained from tables I.19 and I.20 by subtracting the row total for a given group from the column total for the same group and dividing by the sample total. This measure, the net difference rate, and two standard errors of the estimate (the equation for the two standard errors is $2 \sqrt{b+c+1/n}$, where b is the sum of the group row off-diagonals, c is the sum of the group column off-diagonals, and n is the total sample size) are provided in table I.21. Industry group 6 (transportation, communications, and other public utilities) is the only major group in either occupation or industry for which the confidence limits of two standard errors do not include zero, but the total underestimate of 3.0 percent ($\frac{503 - 488}{503} \times 100 = 3.0$ percent) does not appear serious.

The index of inconsistency, defined as the ratio of the simple response variance to the total variance, gives values ranging between zero and one. (See reference 7 for fuller discussion.) In this study the response variance was the result of different codes assigned to the same questionnaire responses, and higher values of the index for certain groups would suggest problems with those groups. In fact, as table I.21 shows, the inconsistency index is generally close to the group error rate, except where the sample is less than 100, when the index is highly biased and is not computed. Excluding these cases, once again the two poorest industry groups and the two poorest occupation groups in terms of the inconsistency index are the groups with the worst group and individual coding error rates.

Table I.22 provides a comparison of the inconsistency indexes for 1960 and 1970 for the five major industry and occupation groups with the highest indexes in 1970. Although the number of codes and code descriptions within major groups were not always identical in the 2 years, four of the industry groups and four of the occupation groups were among the high five in 1960 and 1970. The indexes for 1970 in both industry and occupation were larger than the indexes in 1960 except for the major industry group, entertainment and recreation services. (See reference 6 for data and indexes of all major groups in 1960 and reference 8 for coding structures in 1960 and 1970.)

Table I.1. Estimates of Outgoing Error Rates
and Standard Errors for General Coding

Question ¹	All codes			
	Total codes	Total errors	Error rate (percent)	Standard error (percentage points)
Total.....	142,824	1,049	0.73	0.036
a5.....	5,511	45	.8	.12
H12.....	1,686	23	1.4	.28
H13a.....	1,639	7	.4	.16
H13b.....	1,622	14	.9	.22
H13c.....	1,613	5	.3	.14
H13d.....	1,556	3	.2	.11
2.....	15,308	198	1.3	.14
4.....	14,989	31	.2	.07
13.....	15,055	119	.8	.09
14-15.....	11,414	65	.6	.08
17.....	11,078	59	.5	.09
19b.....	4,871	267	5.5	.57
24b.....	1,963	26	1.3	.28
36.....	2,616	46	1.8	.29
40a.....	6,756	48	.7	.11
40b.....	6,655	16	.2	.06
40c.....	6,654	13	.2	.06
41a.....	10,633	26	.2	.05
41b.....	10,620	12	.1	.04
41c.....	10,585	26	.2	.05

¹See appendix A for identification of items.

Table I.2. Estimates of Error Rates for Numeric Coding

Question ¹	Total codes	Total errors		Incorrect code assigned		No code assigned	
		Number	Error rate (percent)	Number	Error rate (percent)	Number	Error rate (percent)
Total.....	31,010	813	2.62	590	1.90	223	0.72
a5.....	(X)	(X)	(X)	(X)	(X)	(X)	(X)
H12.....	1,686	23	1.4	15	.9	8	.5
H13a.....	1,206	7	.6	6	.5	1	.1
H13b.....	878	14	1.6	11	1.3	3	.3
H13c.....	329	5	1.5	4	1.2	1	.3
H13d.....	188	3	1.6	1	.5	2	1.1
2.....	925	116	12.5	82	8.9	34	3.7
4.....	36	10	27.8	2	5.6	8	22.2
13.....	4,741	104	2.2	70	1.5	34	.7
14-15.....	2,052	54	2.6	43	2.1	11	.5
17.....	934	31	3.3	19	2.0	12	1.3
19b.....	4,871	267	5.5	233	4.8	34	.7
24b.....	1,963	26	1.3	17	.9	9	.5
36.....	277	41	14.8	9	3.2	32	11.6
40a.....	6,334	47	.7	37	.6	10	.2
40b.....	360	6	1.7	5	1.4	1	.3
40c.....	218	9	4.1	4	1.8	5	2.3
41a.....	1,501	22	1.5	16	1.1	6	.4
41b.....	347	7	2.0	3	.9	4	1.2
41c.....	2,164	21	1.0	13	.6	8	.4

X Not applicable.

¹See appendix A for identification of items.

Table I.3. Estimates of Error Rates for Edit Coding

Question ¹	Total codes	Total errors		Incorrect code assigned		No code assigned	
		Number	Error rate (percent)	Number	Error rate (percent)	Number	Error rate (percent)
Total.....	111,814	236	0.21	183	0.16	53	0.05
a5.....	5,511	45	.8	39	.7	6	.1
H12.....	(X)	(X)	(X)	(X)	(X)	(X)	(X)
H13a.....	433	-	-	-	-	-	-
H13b.....	744	-	-	-	-	-	-
H13c.....	1,284	-	-	-	-	-	-
H13d.....	1,368	-	-	-	-	-	-
2.....	14,383	82	.6	60	.4	22	.2
4.....	14,953	21	.1	15	.1	6	<.05
13.....	10,314	15	.1	14	.1	1	<.05
14-15.....	9,362	11	.1	10	.1	1	<.05
17.....	10,144	28	.3	28	.3	-	-
19b.....	(X)	(X)	(X)	(X)	(X)	(X)	(X)
24b.....	(X)	(X)	(X)	(X)	(X)	(X)	(X)
36.....	2,339	5	.2	4	.2	1	<.05
40a.....	422	1	.2	1	.2	-	-
40b.....	6,295	10	.2	7	.1	3	<.05
40c.....	6,436	4	.1	1	<.05	3	<.05
41a.....	9,132	4	<.05	1	<.05	3	<.05
41b.....	10,273	5	<.05	-	-	5	<.05
41c.....	8,421	5	.1	3	<.05	2	<.05

- Represents zero.

X Not applicable.

¹See appendix A for identification of items.

Table I.4. Analysis of Coder Errors

Question ¹	Total errors	Percent of total	Incorrect code assigned		No code assigned	
			Number	Percent of total item errors	Number	Percent of total item errors
Total.....	1,049	100.0	773	73.7	276	26.3
a5.....	45	4.3	39	86.7	6	13.3
H12.....	23	2.2	15	65.2	8	34.8
H13a.....	7	.7	6	85.7	1	14.3
H13b.....	14	1.3	11	78.6	3	21.4
H13c.....	5	.5	4	80.0	1	20.0
H13d.....	3	.3	1	33.3	2	66.7
2.....	198	18.9	142	71.7	56	28.3
4.....	31	3.0	17	54.8	14	45.2
13.....	119	11.3	84	70.6	35	29.4
14-15.....	65	6.2	53	81.5	12	18.5
17.....	59	5.6	47	79.7	12	20.3
19b.....	267	25.5	233	87.3	34	12.7
24b.....	26	2.5	17	65.4	9	34.6
36.....	46	4.4	13	28.3	33	71.7
40a.....	48	4.6	38	79.2	10	20.8
40b.....	16	1.5	12	75.0	4	25.0
40c.....	13	1.2	5	38.5	8	61.5
41a.....	26	2.5	17	65.4	9	34.6
41b.....	12	1.1	3	25.0	9	75.0
41c.....	26	2.5	16	61.5	10	38.5

¹See appendix A for identification of items.

**Table I.5. Distribution of Error Rates and Standard Errors for
Census Regions and Puerto Rico**

Region	Number coded	Number of errors	Error rate (percent)	Standard error (percentage points)
Total.....	142,824	1,049	0.73	0.036
Northeast (Conn., Maine, Mass., N.H., N.J., N.Y., Pa., R.I., Vt.).....	34,574	253	.73	.074
North Central (Ill., Ind., Iowa, Kans., Mich., Minn., Mo., Nebr., N. Dak., Ohio, S. Dak., Wis.).....	38,381	221	.58	.058
South (Ala., Ark., D.C., Del., Fla., Ga., Ky., La., Md., Miss., N.C., Okla., S.C., Tenn., Tex., Va., W. Va.).....	43,696	341	.78	.068
West (Alaska, Ariz., Calif., Colo., Hawaii, Idaho, Mont., Nev., N. Mex., Oreg., Utah, Wash., Wyo.).....	24,601	216	.88	.088
Puerto Rico.....	1,572	18	1.15	.56

Table I.6. Distribution of Error Rates By Date Coded

Date coded	Weekly number coded	Weekly error rate (percent)	Cumulative error rate (percent)	Date coded	Weekly number coded	Weekly error rate (percent)	Cumulative error rate (percent)
Total.....	133,660	(X)	0.72				
5/31-6/6/70.....	352	1.14	1.14	12/6-12/12....	2,982	0.60	0.69
6/7-6/13.....	577	.17	.54	12/13-12/19...	2,753	.76	.70
6/14-6/20.....	674	.15	.37	12/20-12/26...	2,174	1.15	.72
6/21-6/27.....	1,160	.43	.40	12/27-1/2/71..	2,711	1.11	.74
6/28-7/4.....	590	.68	.45	1/3-1/9.....	2,803	.57	.73
7/5-7/11.....	571	.88	.51	1/10-1/16.....	3,031	.76	.73
7/12-7/18.....	1,240	.73	.56	1/17-1/23.....	2,843	.56	.73
7/19-7/25.....	1,721	.76	.61	1/24-1/30.....	2,437	1.23	.75
7/26-8/1.....	1,567	.51	.59	1/31-2/6.....	2,831	.64	.74
8/2-8/8.....	1,459	1.71	.76	2/7-2/13.....	2,517	.64	.74
8/9-8/15.....	1,256	.56	.73	2/14-2/20.....	2,908	1.00	.75
8/16-8/22.....	878	.46	.71	2/21-2/27.....	3,998	.88	.76
8/23-8/29.....	865	.23	.68	2/28-3/6.....	3,629	.72	.75
8/30-9/5.....	702	.43	.67	3/7-3/13.....	4,348	.62	.75
9/6-9/12.....	901	1.66	.73	3/14-3/20.....	3,549	.65	.74
9/13-9/19.....	912	.44	.71	3/21-3/27.....	4,460	.49	.73
9/20-9/26.....	330	1.21	.72	3/28-4/3.....	4,611	.63	.72
9/27-10/3.....	606	1.16	.74	4/4-4/10.....	4,444	1.19	.75
10/4-10/10.....	1,112	.45	.72	4/11-4/17.....	5,403	.70	.75
10/11-10/17.....	1,277	.55	.71	4/18-4/24.....	5,020	.78	.75
10/18-10/24.....	1,559	.45	.69	4/25-5/1.....	5,232	.80	.75
10/25-10/31.....	1,643	.91	.71	5/2-5/8.....	4,722	.55	.74
11/1-11/7.....	3,001	.60	.69	5/9-5/15.....	5,400	.72	.74
11/8-11/14.....	2,588	.81	.70	5/16-5/22.....	4,349	.37	.73
11/15-11/21.....	3,112	.77	.71	5/23-5/29.....	4,254	.31	.71
11/22-11/28.....	1,834	.98	.73	5/30-6/5.....	2,902	.79	.71
11/29-12/5.....	2,915	.41	.70	6/6-6/12.....	1,947	.82	.72

Table I.7. Analysis of Code Comparisons

Comparison type	All codes		Numeric codes		Edit codes	
	Total	Percent of total	Total	Percent of total	Total	Percent of total
Total.....	142,824	100.0	30,990	100.0	111,834	100.0
3-way agreement.....	140,161	98.1	28,990	93.5	111,171	99.4
2-way agreement.....	2,606	1.8	1,943	6.3	663	.6
3-way disagreement.....	57	.1	57	.2	-	-

- Represents zero.

Table I.8. Estimates of Outgoing Error Rates for Place-of-Work Coding

Correct code type	Total coded	Total errors	Percent error rate	Correct code type assigned			Incorrect code type assigned			No code assigned		
				Number of errors	Percent of total coded	Percent of total errors	Number of errors	Percent of total coded	Percent of total errors	Number of errors	Percent of total coded	Percent of total errors
Total.....	4,272	422	9.9	231	5.4	54.8	128	3.0	30.3	63	1.5	14.9
10-digit code.....	2,472	241	9.7	136	5.5	56.4	59	2.4	24.5	46	1.9	19.1
16-digit code.....	1,800	181	10.1	95	5.3	52.5	69	3.8	38.1	17	.9	9.4

Table I.9. Analysis of Coder Errors Within Code Type

Correct code type	Error type	Total errors	Percent of code type	Errors from 2-way agreements		Errors from 3-way disagreements	
				Number of errors	Percent of code type	Number of errors	Percent of code type
10-digit codes.....	.....	136	100.0	100	100.0	36	100.0
	(1) ZIP.....	46	33.8	30	30.0	16	44.4
	(2) UAC.....	78	57.4	65	65.0	13	36.1
	(1) and (2).....	12	8.8	5	5.0	7	19.5
16-digit codes.....	.....	95	100.0	66	100.0	29	100.0
	(1) ZIP.....	14	14.7	9	13.6	5	17.2
	(2) Street name code....	22	23.2	16	24.3	6	20.7
	(3) Structure number....	22	23.2	15	22.7	7	24.1
	(1) and (2).....	23	24.2	19	28.8	4	13.8
	(1) and (3).....	2	2.1	2	3.0	-	-
	(2) and (3).....	3	3.1	-	-	3	10.4
	(1), (2), and (3).....	9	9.5	5	7.6	4	13.8

- Represents zero.

Table I.10. Distribution of Error Rates and Standard Errors for
Census Regions and Puerto Rico

Region	Number coded	Number of errors	Error rate (percent)	Standard error (percentage points)
Total.....	4,272	422	9.9	0.49
Northeast (Conn., Maine, Mass., N.H., N.J., N.Y., Pa., R.I., Vt.).....	1,034	111	10.7	1.04
North Central (Ill., Ind., Iowa, Kans., Mich., Minn., Mo., Nebr., N. Dak., Ohio, S. Dak., Wis.).....	1,189	107	9.0	.99
South (Ala., Ark., D.C., Del., Fla., Ga., Ky., La., Md., Miss., N.C., Okla., S.C., Tenn., Tex., Va., W. Va.).....	1,282	124	9.7	.90
West (Alaska, Ariz., Calif., Colo., Hawaii, Idaho, Mont., Nev., N. Mex., Oreg., Utah, Wash., Wyo.).....	706	77	10.9	1.31
Puerto Rico.....	61	3	4.9	2.68

Table I.11. Analysis of Code Comparisons

Correct code type	Total coded	Percent of total coded	3-way agreements		2-way agreements		3-way disagreements			
			Number coded	Percent of total coded	Number coded	Percent of total coded	One coder correct		No coder correct	
							Number coded	Percent of total coded	Number coded	Percent of total coded
Total.....	4,272	100.0	2,953	69.1	1,122	26.3	175	4.1	22	0.5
10-digit code.....	2,472	57.9	1,736	70.2	648	26.2	79	3.2	9	.4
16-digit code.....	1,800	42.1	1,217	67.6	474	26.4	96	5.3	13	.7

Table I.12. Estimates of Error Rates and Standard Errors By Type of Coding

Type of coding ¹	Number coded	Number of errors	Error rate (percent)	Standard error (percentage points)
Total.....	27,842	2,465	8.9	0.21
Industry.....	9,335	852	9.1	.34
Item 33.....	8,083	710	8.8	.33
Item 38a.....	1,252	142	11.3	.95
Occupation.....	9,339	1,243	13.3	.40
Item 34.....	8,088	1,044	12.9	.39
Item 38b.....	1,251	199	15.9	1.11
Class of worker.....	9,168	370	4.0	.23
Item 35.....	7,948	255	3.2	.21
Item 38c.....	1,220	115	9.4	.88

¹See appendix C for identification of items.

Table I.13. Analysis of Coder Errors

Type of coding ¹	Total number of errors	Different code assigned		Code assigned should be blank		No code assigned	
		Number of errors	Percent of total	Number of errors	Percent of total	Number of errors	Percent of errors
Total.....	2,465	1,950	79.1	44	1.8	471	19.1
Industry.....	852	695	81.6	21	2.5	136	15.9
Item 33.....	710	598	84.2	16	2.3	96	13.5
Item 38a.....	142	97	68.3	5	3.5	40	28.2
Occupation.....	1,243	1,079	86.8	18	1.5	146	11.7
Item 34.....	1,044	932	89.3	14	1.3	98	9.4
Item 38b.....	199	147	73.9	4	2.0	48	24.1
Class of worker.....	370	176	47.6	5	1.3	189	51.1
Item 35.....	255	170	66.7	5	1.9	80	31.4
Item 38c.....	115	6	5.2	-	-	109	94.8

- Represents zero.

¹See appendix C for identification of items.

**Table I.14. Distribution of Error Rates and Standard Errors for
Census Regions and Puerto Rico**

Region	Number coded	Number of errors	Error rate (percent)	Standard error (percentage points)
Total.....	27,842	2,465	8.9	0.21
Northeast (Conn., Maine, Mass., N.H., N.J., N.Y., Pa., R.I., Vt.).....	6,774	604	8.9	.40
North Central (Ill., Ind., Iowa, Kans., Mich., Minn., Mo., Nebr., N. Dak., Ohio, S. Dak., Wis.).....	7,544	655	8.7	.40
South (Ala., Ark., D.C., Del., Fla., Ga., Ky., La., Md., Miss., N.C., Okla., S.C., Tenn., Tex., Va., W. Va.).....	8,437	782	9.3	.40
West (Alaska, Ariz., Calif., Colo., Hawaii, Idaho, Mont., Nev., N. Mex., Oreg., Utah, Wash., Wyo.).....	4,856	402	8.3	.47
Puerto Rico.....	231	22	9.5	.71

Table I.15. Distribution of Error Rates By Date Coded

Date coded	Weekly number coded	Weekly error rate (percent)	Cumulative error rate (percent)	Date coded	Weekly number coded	Weekly error rate (percent)	Cumulative error rate (percent)
Total.....	26,527	(X)	8.9				
5/31-6/6/70....	30	3.3	3.3	12/6-12/12.....	440	8.4	9.9
6/7-6/13.....	27	3.7	3.5	12/13-12/19....	379	11.9	10.0
6/14-6/20.....	30	6.7	4.6	12/20-12/26....	250	7.6	9.9
6/21-6/27.....	78	2.6	3.6	12/27-1/2/71...	288	8.0	9.9
6/28-7/4.....	220	8.6	6.5	1/3-1/9.....	379	8.2	9.8
7/5-7/11.....	176	15.3	9.3	1/10-1/16.....	519	9.4	9.8
7/12-7/18.....	105	13.3	9.9	1/17-1/23.....	620	10.3	9.8
7/19-7/25.....	258	11.2	10.3	1/24-1/30.....	683	8.8	9.7
7/26-8/1.....	236	10.2	10.3	1/31-2/6.....	609	8.4	9.6
8/2-8/8.....	261	8.0	9.9	2/7-2/13.....	820	8.5	9.6
8/9-8/15.....	240	8.8	9.7	2/14-2/20.....	684	8.2	9.5
8/16-8/22.....	210	7.1	9.4	2/21-2/27.....	969	7.5	9.3
8/23-8/29.....	193	12.4	9.7	2/28-3/6.....	935	8.7	9.3
8/30-9/5.....	165	12.7	9.9	3/7-3/13.....	858	9.6	9.3
9/6-9/12.....	131	9.2	9.9	3/14-3/20.....	934	10.0	9.3
9/13-9/19.....	150	4.7	9.6	3/21-3/27.....	886	8.8	9.3
9/20-9/26.....	189	7.9	9.4	3/28-4/3.....	889	9.8	9.3
9/27-10/3.....	187	12.3	9.6	4/4-4/10.....	1,016	7.1	9.2
10/4-10/10.....	108	8.3	9.6	4/11-4/17.....	872	6.7	9.1
10/11-10/17....	201	10.4	9.6	4/18-4/24.....	1,058	8.2	9.0
10/18-10/24....	256	7.8	9.5	4/25-5/1.....	972	8.6	9.0
10/25-10/31....	254	13.0	9.7	5/2-5/8.....	1,102	8.3	9.0
11/1-11/7.....	299	12.4	9.9	5/9-5/15.....	922	8.0	9.0
11/8-11/14.....	324	10.8	10.0	5/16-5/22.....	1,033	6.6	8.8
11/15-11/21....	627	10.7	10.1	5/23-5/29.....	827	7.3	8.8
11/22-11/28....	432	10.0	10.1	5/30/6/5.....	666	10.4	8.8
11/29-12/5.....	453	9.5	10.0	6/6-6/12.....	1,077	10.0	8.9

Table I.16. Analysis of Code Comparisons

Type of coding ¹	Total number of coders	3-way agreements		2-way agreements		3-way disagreements			
		Number of codes	Percent of total	Number of codes	Percent of total	One coder correct		No coder correct	
						Number of codes	Percent of total	Number of codes	Percent of total
Total.....	27,842	22,227	79.8	4,944	17.8	646	2.3	25	0.1
Industry.....	9,335	7,168	76.8	1,852	19.9	302	3.2	13	.1
Item 33.....	8,083	6,284	77.8	1,535	19.0	253	3.1	11	.1
Item 38a.....	1,252	884	70.6	317	25.3	49	3.9	2	.2
Occupation.....	9,339	6,578	70.5	2,411	25.8	338	3.6	12	.1
Item 34.....	8,088	5,743	71.0	2,048	25.3	286	3.6	11	.1
Item 38b.....	1,251	835	66.7	363	29.0	52	4.2	1	.1
Class of worker.....	9,168	8,481	92.5	681	7.4	6	.1	-	-
Item 35.....	7,948	7,449	93.7	493	6.2	6	.1	-	-
Item 38c.....	1,220	1,032	84.6	188	15.4	-	-	-	-

- Represents zero.

¹See appendix C for identification of items.

Table I.17. Estimated Error Rates By Industry Groups

(Question 33)

Industry group	Number coded	Number of errors	Error rate (percent)	Number coded ¹	Number of errors ¹	Error rate ¹ (percent)
Total.....	8,083	710	8.8	7,959	586	7.4
Agriculture, forestry, and fisheries.....	288	15	² 5.2	284	11	3.9
Mining.....	62	4	6.5	61	3	4.9
Construction.....	460	66	² 14.3	457	63	13.8
Manufacturing.....	1,988	227	11.4	1,951	190	9.7
Durable goods.....	1,107	136	² 12.3	1,089	118	10.8
Nondurable goods.....	881	91	10.3	862	72	8.4
Transportation, communications, and other public utilities.....	508	41	8.1	503	36	7.2
Wholesale and retail trade.....	1,643	156	9.5	1,632	145	8.9
Wholesale trade.....	281	48	² 17.1	278	45	² 16.2
Retail trade.....	1,362	108	7.9	1,354	100	7.4
Finance, insurance, and real estate.....	361	15	² 4.2	358	12	3.4
Business and repair services.....	254	44	² 17.3	247	37	15.0
Personal services.....	459	16	² 3.5	457	14	3.1
Entertainment and recreation services.....	102	8	7.8	100	6	6.0
Professional and related services.....	1,428	74	² 5.2	1,407	53	3.8
Public administration.....	382	23	6.0	374	15	4.0
Workers not classified.....	-	-	(X)	-	-	(X)
Armed Forces.....	92	1	² 1.1	92	1	1.1
Nonworkers.....	40	4	10.0	36	-	-
No code required.....	16	16	(X)	-	-	(X)

- Represents zero.

X Not applicable.

¹Excluding no code required or assigned and inadmissible codes.

²Significantly different from the remainder of the sample at the 95-percent level of confidence using $\frac{p_1 q_1}{n_1} + \frac{p_2 q_2}{n_2}$ as an estimate of the variance of the difference.

Table I.18. Estimated Error Rates By Occupation Groups
(Question 34)

Occupation group	Number coded	Number of errors	Error rate (percent)	Number coded ¹	Number of errors ¹	Error rate ¹ (percent)
Total.....	8,088	1,044	12.9	7,963	919	11.5
Professional, technical, and kindred workers.....	1,044	146	14.0	1,028	130	12.6
Managers and administrators, except farm.....	571	103	² 18.0	565	97	17.2
Salesworkers.....	574	57	² 9.9	564	47	8.3
Clerical and kindred workers.....	1,564	188	12.0	1,549	173	11.2
Craftsmen and kindred workers.....	1,001	142	14.2	986	127	12.9
Operatives, except transport.....	1,152	171	² 14.8	1,128	147	13.0
Transport equipment operatives.....	266	27	10.2	263	24	9.1
Laborers, except farm.....	386	76	² 19.7	381	71	18.6
Farmers and farm managers.....	125	11	8.8	123	9	7.3
Farm laborers and farm foremen.....	116	8	² 6.9	114	6	5.3
Service workers, except private household.....	984	79	² 8.0	977	72	7.4
Private household workers.....	159	15	9.4	159	15	9.4
Armed Forces.....	92	3	² 3.3	90	1	1.1
Nonworkers.....	40	4	10.0	36	-	-
No code required.....	14	14	(X)	-	-	(X)

- Represents zero.

X Not applicable.

¹Excluding no code required or assigned and inadmissible codes.

²Significantly different from the remainder of the sample at the 95-percent level of confidence using $\frac{P_1 q_1}{n_1} + \frac{P_2 q_2}{n_2}$ as an estimate of the variance of the difference.

Table I.19. Distribution of Industry Errors Outside of Major Group

Correct major group	Production code																	Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
1. Agriculture, forestry, and fisheries....	275	-	1	-	2	-	4	-	-	-	1	-	-	1	-	-	-	284
2. Mining.....	-	58	-	-	-	-	-	2	-	-	-	-	1	-	-	-	-	61
3. Construction.....	1	-	434	7	-	2	1	3	-	2	3	-	3	1	-	-	-	457
4. Manufacturing, durable goods.....	1	-	2	1,053	12	-	8	1	1	6	-	-	3	2	-	-	-	1,089
5. Manufacturing, nondurable goods.....	3	-	2	8	828	2	7	9	1	2	-	-	-	-	-	-	-	862
6. Transportation, communications, and other public utilities.....	1	-	3	4	3	478	1	3	-	5	-	-	-	5	-	-	-	503
7. Wholesale trade.....	2	-	-	4	9	1	244	11	-	6	-	1	-	-	-	-	-	278
8. Retail trade.....	1	-	2	1	8	3	8	1,313	1	7	2	3	2	3	-	-	-	1,354
9. Finance, insurance, and real estate.....	-	-	1	1	-	-	-	-	351	2	1	-	2	-	-	-	-	358
10. Business and repair services.....	-	-	5	5	4	-	4	5	1	212	1	2	7	1	-	-	-	247
11. Personal services.....	-	-	-	-	-	1	-	3	-	1	448	1	2	1	-	-	-	457
12. Entertainment and recreation services...	-	-	-	-	-	-	-	-	-	1	-	95	4	-	-	-	-	100
13. Professional and related services.....	1	-	-	1	-	1	-	4	2	6	2	-	1,388	2	-	-	-	1,407
14. Public administration.....	2	-	2	1	-	-	-	-	1	2	-	-	-	364	1	-	1	374
15. Workers not classified.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16. Armed Forces.....	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	91	-	92
17. Nonworkers.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36	36
Total.....	287	58	452	1,085	866	488	277	1,354	358	252	458	102	1,412	381	1	91	37	7,959

- Represents zero.

Table I.20. Distribution of Occupation Errors Outside of Major Group

Correct major group	Production code														Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
1. Professional, technical, and kindred workers.....	973	14	2	16	9	5	-	1	-	-	8	-	-	-	1,028
2. Managers and administrators, exc. farm..	12	494	21	13	12	3	1	5	-	-	4	-	-	-	565
3. Salesworkers.....	1	26	521	12	-	-	-	3	-	-	1	-	-	-	564
4. Clerical and kindred workers.....	26	13	5	1,484	4	6	-	6	-	1	3	-	-	1	1,549
5. Craftsmen and kindred workers.....	7	13	-	7	918	18	-	9	1	1	11	-	-	1	986
6. Operatives, except transport.....	3	2	1	4	36	1,070	1	8	1	1	1	-	-	-	1,128
7. Transport equipment operatives.....	-	-	4	3	1	1	250	3	1	-	-	-	-	-	263
8. Laborers, except farm.....	1	3	-	10	10	14	2	330	-	2	8	1	-	-	381
9. Farmers and farm managers.....	-	1	-	-	1	-	-	1	114	6	-	-	-	-	123
10. Farm laborers and farm foremen.....	-	-	-	-	-	2	-	1	1	110	-	-	-	-	114
11. Service workers, exc. private household.	14	2	2	10	1	3	-	5	-	1	936	3	-	-	977
12. Private household workers.....	2	-	-	-	-	-	-	-	-	-	3	154	-	-	159
13. Armed Forces.....	1	-	-	-	-	-	-	-	-	-	-	-	89	-	90
14. Nonworkers.....	-	-	-	-	-	-	-	-	-	-	-	-	-	36	36
Total.....	1,040	568	556	1,559	992	1,122	254	372	118	122	975	158	89	38	7,963

- Represents zero.

Table I.21. Estimates of Bias, Inconsistency, and Error for Major Industry and Occupation Groups

Correct group	Net difference rate	2σ NDR	Inconsistency index	Major group error rate (percent)
INDUSTRY				
Total.....	(x)	(x)	(x)	3.7
Agriculture, forestry, and fisheries.....	0.0004	0.0012	0.0381	3.2
Mining.....	-.0004	.0005	(x)	4.9
Construction.....	-.0006	.0016	.0478	5.0
Manufacturing, durable goods.....	-.0005	.0021	.0367	3.3
Manufacturing, nondurable goods.....	.0005	.0021	.0467	3.9
Transportation, communications, and other public utilities.....	-.0019	.0015	.0377	5.0
Wholesale trade.....	-.0001	.0021	.1251	12.2
Retail trade.....	-	.0023	.0365	3.0
Finance, insurance, and real estate.....	-	.0010	.0205	2.0
Business and repair services.....	.0006	.0022	.1552	14.2
Personal services.....	.0001	.0011	.0220	2.0
Entertainment and recreation services.....	.0003	.0009	.0602	5.0
Professional and related services.....	.0006	.0017	.0185	1.4
Public administration.....	.0009	.0013	.0375	2.7
Workers not classified.....	.0001	.0004	(x)	-
Armed Forces.....	-.0001	.0004	(x)	1.1
Nonworkers.....	.0001	.0004	(x)	-
OCCUPATION				
Total.....	(x)	(x)	(x)	6.1
Professional, technical, and kindred workers.	.0015	.0028	.0678	5.4
Managers and administrators, except farm....	.0004	.0030	.1378	12.6
Salesworkers.....	-.0010	.0022	.0749	7.6
Clerical and kindred workers.....	.0013	.0030	.0560	4.2
Craftsmen and kindred workers.....	.0008	.0030	.0820	6.9
Operatives, except transport.....	-.0008	.0026	.0569	5.1
Transport equipment operatives.....	-.0011	.0011	.0340	4.9
Laborers, except farm.....	-.0011	.0024	.1296	13.4
Farmers and farm managers.....	-.0006	.0009	.0548	7.3
Farm laborers and farm foremen.....	.0010	.0010	.0688	3.5
Service workers, except private household....	-.0003	.0023	.0467	4.2
Private household workers.....	-.0001	.0008	.0290	3.1
Armed Forces.....	-.0001	.0004	(x)	1.1
Nonworkers.....	.0003	.0004	(x)	-

- Represents zero.

X Not applicable.

Table I.22. Comparison of Inconsistency Indexes for Industry and Occupation Groups for 1960 and 1970

Industry	1970			1960 ¹		
	Number of codes	Inconsistency index	Rank	Number of codes	Inconsistency index	Rank
Business and repair services.....	12	0.1552	1	4	0.0914	2
Wholesale trade.....	17	.1251	2	10	.1076	1
Entertainment and recreation services ²	3	.0602	3	3	.0703	3
Construction.....	4	.0478	4	1	.0345	5
Manufacturing, nondurable goods.....	39	.0467	5	34	.0345	6
Mining ²	4	(X)	(X)	4	.0513	4

Occupation	1970			1960 ¹		
	Number of codes	Inconsistency index	Rank	Number of codes	Inconsistency index	Rank
Managers and administrators, except farm.....	23	0.1378	1	13	0.0466	2
Laborers, except farm.....	15	.1296	2	10	.0532	1
Craftsmen and kindred workers.....	95	.0820	3	61	.0395	4
Salesworkers.....	13	.0749	4	9	.0270	9
Farm laborers and farm foremen ²	4	.0688	5	4	.0463	3
Operatives (2 major groups 1970).....	53	.0569	7	53	.0385	5
	11	.0340	11			

X Not applicable.

¹Indexes computed from 1960 data using number coded rather than total persons.²Identical code descriptions in 1960 and 1970.

Chapter II. Production and Quality Learning Curves

A. Introduction

Estimates of production rates and error rates for different operations are used by the Census Bureau to determine personnel needs, training requirements, and quality standards. For these reasons, it appeared useful to investigate the mathematical relationship between experience and quality for coding operations in the 1970 decennial census to assist in planning similar operations in the future.

During World War II, the aircraft industry [1] found that for many operations the cumulative cost per unit of production decreased at a predictable rate through a "learning" process according to the following mathematical relationship: $Y = aX^b$, where Y is the cumulative average cost per unit of production, X is the number of production units, and a and b are constants. This relationship is called a "learning curve," and a useful measure of the rate of learning is its "slope," $S = 2^b$ (3), where $100(1-S)$ percent is the amount the cumulative cost per unit is decreased when the number of production units doubles.

The purpose of this study was to determine how well various types of curves (linear, exponential, power function, and hyperbolic) fit the data on changes in coding production and quality over time, and whether such curves provide a useful description of the learning process. During actual production coding in the 1970 decennial census, clerks from each type of coding were observed by personnel from the Management and Organization Division to obtain information on production rates. The number of persons processed during each observation interval and the number of weeks of coding experience were recorded for each coder. The ideal measure of production would have been the number of persons actually coded, but the only production figure available from the Management and Organization study was the total number of persons processed; this figure bore a reasonably constant relationship to the number of persons coded. Data on quality, for industry and occupation coders only, were obtained from quality control records in the pilot study of coder test scores described in the next section.

B. Production Learning Curves

The dependent variable Y , average cumulative hours per 1,000 persons processed, and the independent variable X , average cumulative weekly production (persons processed) for each type of coding, shown in table II.1, provided the input to a computer program for determining the least squares fit with six curves. Averages were computed for all coders at a given level of experience. The power function, $Y = aX^b$, provided the best least squares fit (index of determination above 0.93) for all three types of coding. Constants for all curves for each type of coding are shown in table II.2.

With the appropriateness of the power function to represent the learning process established, a specialized learning curve program, based on a slightly different form of inputs, was utilized to generate the outputs shown in tables II.3, II.4, and II.5. Here the dependent variable T , total hours of production time per coder, was equal to $X Y$ in table II.1, so that $T = aX^{b+1}$, with the unit of X changed to represent thousands of persons coded. The differences between the values of A in table II.2 and tables II.3, II.4, and II.5 reflect the interpretation of A as the time for the first record completed in the former and the average cumulative time per record for the first thousand records in the latter.

Assuming that, on the average, coders in similar coding operations increase production at the same rate as in 1970, the typical general coder could be expected to double his initial production rate in 24 weeks, after he has processed 80,000 persons. (In the last column of table II.3, the production rate for individual coders increased from 49.5 records per hour to 98.7 records per hour.) Similarly, it would take approximately 25 weeks for a place-of-work coder after he has processed 100,000 persons (see table II.4) and 17 weeks for an industry and occupation coder after he has processed 50,000 persons (see table II.5) to double the production rate. Since the B 's are approximately equal, the slope, or rate at which the coding time per production unit decreased, was approximately the same for all coding.

C. Quality Learning Curves for Industry and Occupation Coding

The dependent variable Y , the cumulative error rate, and the independent variable X , the cumulative average production per coder (actual codes assigned), in table II.6 provided the data for the least squares fit to the six curves. (Note that these data are from different records than those of table II.1.)

The typical "learning" curve, the power function, was also the best least squares fit (index of determination 0.94) for the learning process for quality in coding. Table II.7 presents the constants and indexes of determination for all curves.

The data are plotted on page 17. A comparison of the functions of best fit for production and quality learning indicates that production improves with experience more sharply than does quality. Considering the "slopes" of the power functions, the cumulative production time per unit decreases by 11.4 percent for each doubling of experience (slope = .886), while the cumulative error rate decreases relatively by only 7.6 percent (slope = .924) over the same period.

"Learning" Curve Quality Versus Production ($Y=28.6789X^{-0.1137}$)

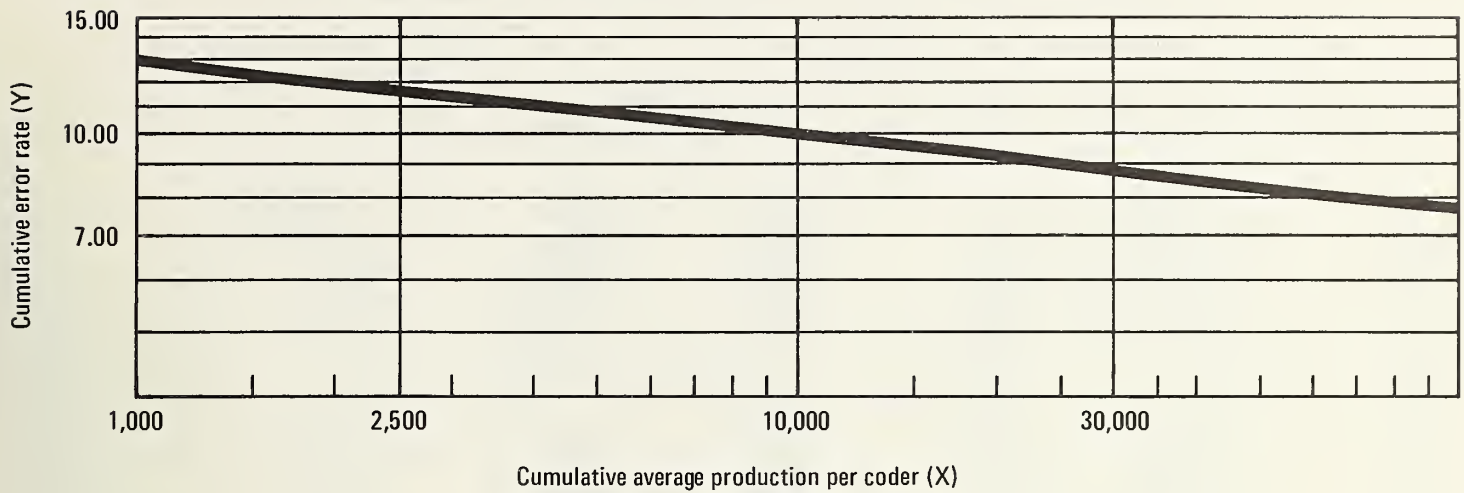


Table II.1. Data for "Learning" Curves

Weeks' experience	General coding		Place-of-work coding		Industry and occupation coding	
	Average cumulative weekly production, X	Average cumulative hours per 1,000 persons, Y	Average cumulative weekly production, X	Average cumulative hours per 1,000 persons, Y	Average cumulative weekly production, X	Average cumulative hours per 1,000 persons, Y
1.....	1,840.40	21.73	2,601.60	15.38	1,599.60	25.01
2.....	4,044.40	19.78	4,968.00	16.10	3,675.20	21.77
3.....	6,636.00	18.08	8,076.00	14.86	5,858.40	20.48
4.....	9,433.60	16.96	10,918.00	14.65	8,362.00	19.13
5.....	12,395.20	16.14	14,980.90	13.35	10,924.40	18.31
6.....	15,672.00	15.31	18,472.80	12.99	13,764.40	17.44
7.....	19,080.00	14.68	21,556.40	12.99	16,018.00	17.48
8.....	22,360.00	14.31	26,344.80	12.15	19,124.00	16.73
9.....	25,706.40	14.00	31,386.80	11.47	22,598.00	15.93
10.....	29,152.00	13.72	35,354.40	11.31	25,937.20	15.42
11.....	32,061.20	13.72	34,721.20	11.08	29,299.20	15.02
12.....	35,324.00	13.59	44,471.60	10.79	32,226.40	14.89
13.....	38,176.00	13.62	48,703.60	10.68	35,069.60	14.83
14.....	41,782.80	13.40	53,058.80	10.55	38,546.40	14.53
15.....	45,188.80	13.28	57,127.60	10.50	41,580.80	14.43
16.....	48,532.40	13.19	60,970.00	10.50	44,934.40	14.24
17.....	52,248.40	13.01	64,783.20	10.50	49,078.80	13.86
18.....	55,654.40	12.94	68,258.40	10.55	52,484.40	13.72
19.....	59,722.00	12.73	70,402.00	10.80	(X)	(X)
20.....	63,099.60	12.68	(X)	(X)	(X)	(X)

X Not applicable.

Table II.2. Least Squares Curve Fit for Production Data

Curve type	Index of determination	A	B
General coding			
1. $Y=A+BX$	0.714871	18.2274	-1.09491E-4
2. $Y=Ae^{BX}$.....	.770666	18.1838	-6.94966E-6
3. $Y=AX^B$.....	.987646	71.1184	-.157425
4. $Y=A+B/X$.....	.840744	13.3693	18610.8
5. $Y=1/(A+BX)$.....	.82141	5.50141E-2	4.48711E-7
6. $Y=X/(AX+B)$.....	.735818	7.41543E-2	-66.5644
Place-of-work coding			
1. $Y=A+BX$	0.832247	14.8953	-7.59512E-5
2. $Y=Ae^{BX}$.....	.85791	14.9543	-6.03872E-6
3. $Y=AX^B$.....	.932904	55.5161	-.15016
4. $Y=A+B/X$.....	.637248	11.0934	16583.8
5. $Y=1/(A+BX)$.....	.879228	6.64572E-2	4.85549E-7
6. $Y=X/(AX+B)$.....	.585304	9.02982E-2	-98.854
Industry and occupation coding			
1. $Y=A+BX$	0.792311	21.1125	-1.70270E-4
2. $Y=Ae^{BX}$.....	.854941	21.1834	-9.71640E-6
3. $Y=AX^B$.....	.995272	92.1343	-.174691
4. $Y=A+B/X$.....	.814635	14.99	19035.9
5. $Y=1/A+BX$.....	.905813	4.68385E-2	5.65398E-7
6. $Y=X/(AX+B)$.....	.671539	6.62396E-2	-53.6749

Table II.3. "Learning" Curve Output for General Coding Production

$$T=aX^{b+1} \text{ with } a=23.9722 \text{ and } b=-0.157425$$

Cumulative number of records produced by each person X	Total production time		Cumulative average number of hours per person per 1,000 records $Y=aX^b$	Cumulative average of records per hour per person	Hours per person per 1,000 returns for last unit processed $T'=(b+1)Y=dT/dX$	Records per hour per person for last unit processed
	Hours per person $T=aX^{b+1}$	Weeks per person				
1,000	23.9722	0.599305	23.9722	41.715	20.1984	49.5089
5,000	93.0343	2.32586	18.6069	53.7436	15.6777	63.7849
10,000	166.834	4.17084	16.6834	59.94	14.057	71.139
15,000	234.776	5.8694	15.6517	63.8907	13.1878	75.8279
20,000	299.174	7.47935	14.9587	66.8507	12.6038	79.3409
25,000	361.059	9.02647	14.4424	69.2408	12.1688	82.1776
30,000	421.012	10.5253	14.0337	71.2569	11.8245	84.5704
40,000	536.493	13.4123	13.4123	74.5582	11.3009	88.4885
50,000	647.468	16.1867	12.9494	77.2239	10.9108	91.6522
60,000	754.979	18.8745	12.583	79.4725	10.6021	94.3209
70,000	859.691	21.4923	12.2813	81.4246	10.3479	96.6378
80,000	962.066	24.0517	12.0258	83.1544	10.1327	98.6907
90,000	1,062.44	26.561	11.8049	84.7106	9.94652	100.538
100,000	1,161.07	29.0268	11.6107	86.1274	9.7829	102.219
250,000	2,512.77	62.8193	10.0511	99.4917	8.4688	118.08
500,000	4,506.03	112.651	9.01205	110.962	7.59334	131.694
750,000	6,341.09	158.527	8.45479	118.276	7.1238	140.375
1,000,000	8,080.43	202.011	8.08043	123.756	6.80837	146.878

Table II.4. "Learning" Curve Output for Place-of-Work Coding Production

$$T=aX^{b+1} \text{ with } a=19.6761 \text{ and } b=-0.15016$$

Cumulative number of records produced by each person X	Total production time		Cumulative average number of hours per person per 1,000 records $Y=aX^b$	Cumulative average of records per hour per person	Hours per person per 1,000 returns for last unit processed $T'=(b+1)Y=dT/dX$	Records per hour per person for last unit processed
	Hours per person $T=aX^{b+1}$	Weeks per person				
1,000	19.6761	0.491902	19.6761	50.8232	16.7215	59.8032
5,000	77.2593	1.93148	15.4519	64.7171	13.1316	76.1522
10,000	139.244	3.48111	13.9244	71.8161	11.8335	84.5055
15,000	196.529	4.91323	13.102	76.3245	11.1346	89.8105
20,000	250.96	6.27401	12.548	79.6938	10.6638	93.7751
25,000	303.363	7.58409	12.1345	82.4094	10.3124	96.9705
30,000	354.205	8.85512	11.8068	84.6967	10.0339	99.662
40,000	452.306	11.3077	11.3077	88.4357	9.60969	104.062
50,000	546.752	13.6688	10.935	91.4491	9.29303	107.607
60,000	638.384	15.9596	10.6397	93.9874	9.04206	110.594
70,000	727.739	18.1935	10.3963	96.1883	8.83517	113.184
80,000	815.192	20.3798	10.1899	98.1364	8.65978	115.476
90,000	901.013	22.5253	10.0113	99.5875	8.50796	117.537
100,000	985.412	24.6353	9.85412	101.48	8.37442	119.411
250,000	2,146.86	53.6714	8.58742	116.449	7.29793	137.025
500,000	3,869.28	96.732	7.73856	129.223	6.57654	152.056
750,000	5,461.09	136.527	7.28146	137.335	6.18807	161.601
1,000,000	6,973.61	174.34	6.97361	143.398	5.92645	168.735

Table II.5. "Learning" Curve Output for Industry and Occupation Coding Production

$$T=aX^{b+1} \text{ with } a=27.5644 \text{ and } b=-0.174691$$

Cumulative number of records produced by each person X	Total production time		Cumulative average number of hours per person per 1,000 records $Y=aX^b$	Cumulative average of records per hour per person	Hours per person per 1,000 returns for last unit processed $T'=(b+1)Y=dT/dX$	Records per hour per person for last unit processed
	Hours per person $T=aX^{b+1}$	Weeks per person				
1,000	27.5644	0.689111	27.5644	36.2786	22.7492	43.9576
5,000	104.044	2.60109	20.8087	48.0568	17.1736	58.2288
10,000	184.356	4.60891	18.4356	54.2428	15.2151	65.7242
15,000	257.625	6.44063	17.175	58.2242	14.1747	70.5483
20,000	326.664	8.1666	16.3332	61.225	13.4799	74.1843
25,000	392.719	9.81797	15.7088	63.6588	12.9646	77.1332
30,000	456.49	11.4122	15.2163	65.7189	12.5582	79.6295
40,000	578.821	14.4705	14.4705	69.106	11.9426	83.7335
50,000	695.864	17.3966	13.9173	71.8531	11.4861	87.062
60,000	808.861	20.2215	13.481	74.1784	11.126	89.8796
70,000	918.598	22.9649	13.1228	76.2031	10.8304	92.3328
80,000	1,025.62	25.6405	12.8203	78.0016	10.5807	94.5119
90,000	1,130.33	28.2581	12.5592	79.6231	10.3652	96.4767
100,000	1,233.01	30.8253	12.3301	81.1022	10.1762	98.2688
250,000	2,626.58	65.6646	10.5063	95.1807	8.67097	115.327
500,000	4,654.08	116.352	9.30816	107.433	7.68211	130.173
750,000	6,503.75	162.594	8.67166	115.318	7.1568	139.727
1,000,000	8,246.63	206.166	8.24663	121.262	6.80602	146.929

Table II.6. Production and Quality Data

Weeks' experience	Number of coders	Cumulative average production per coder	Cumulative error rate, Y
1.....	27	856.00	13.63
2.....	27	2,273.00	12.00
3.....	27	4,212.33	11.53
4.....	27	6,635.33	11.11
5.....	27	9,170.00	10.47
6.....	27	11,533.15	9.93
7.....	27	14,199.15	9.48
8.....	27	16,952.85	9.27
9.....	27	19,384.33	8.98
10.....	24	22,206.71	8.78
11.....	19	25,426.29	8.53
12.....	14	28,510.15	8.47
13.....	11	30,926.60	8.42
14.....	4	33,301.60	8.41
15.....	4	37,429.35	8.39
16.....	4	41,537.10	8.37
17.....	3	43,457.10	8.37
18.....	2	47,105.10	8.35
19.....	2	52,339.60	8.31
20.....	2	56,937.60	8.28
21.....	2	61,288.60	8.26
22.....	2	64,879.60	8.26
23.....	2	71,396.60	8.24
24.....	2	74,569.60	8.21
25.....	2	78,103.60	8.20
26.....	2	83,148.10	8.19
27.....	2	87,803.10	8.18
28.....	2	89,358.10	8.17
29.....	1	89,700.10	8.17

Table II.7. Least Squares Curve for Quality of Industry and Occupation Coding

Curve type	Index of determination	A	B
1. $Y=A+BX$	0.527253	10.5061	-3.46286E-5
2. $Y=Ae^{BX}$.....	.569914	10.4055	-3.54723E-6
3. $Y=AX^B$.....	.940464	28.6789	-.113711
4. $Y=A+B/X$.....	.737749	8.55348	5316.69
5. $Y=1/(A+BX)$.....	.6095	9.69757E-2	3.68854E-7
6. $Y=X/(AX+B)$.....	.625805	.116989	-48.512

Chapter III. Relationship Between Coder Performance and Test Scores

A. Introduction

Approximately 4,100 persons were employed during the coding operation in the 1970 decennial census, all from the Civil Service register on the basis of their Civil Service rating. This rating is determined partly by scores from two standard examinations: Part 801A, which measures verbal comprehension, and Part 800, which measures clerical and mathematical skills. Persons hired as clerks for census processing could be assigned to any clerical operation, including any of the three coding operations, depending on need. At the completion of a coder training period, training test scores provided an indication of the abilities of the clerks in training situations.

This pilot study was carried out on a sample of 27 industry and occupation (I and O) coders in order to determine whether there was a marked and precise relationship between test scores and production or quality of I and O coding, as well as to investigate the feasibility of a larger study on general coders and place-of-work coders. Quality information and production data were both obtained from records maintained in quality control; these records have been adjusted to reflect changing sampling rates. Linear regression techniques were used to examine the statistical relationships between each of four scores and a combination of the scores (the independent variables) and the two measures of coder performance, the average weekly production rate and the average estimated error rate (the dependent variables). The data for each of the 27 coders in the study are given in table III.1.

B. Results

Simple correlation coefficients in table III.2 were derived using Pearson's Product-Moment method; the largest coefficient, 0.2581, was between the weekly production rate and the Part 800 score (clerical and mathematical skill) of the Civil Service examination. No coefficient was significantly different from zero at the 5-percent level (t-scores are between the two critical t-values at a level of significance of 5 percent). The t-test was used for these coefficients, rather than computing the standard error, because the correlation coefficient is not distributed normally, but the expression $(r-O)/s_r$ follows the t-distribution when the basic variables are distributed bivariate normally. (See

reference 5.) In this case, such an assumption appeared reasonable because each variable was found to have a distribution close to normal; the goodness-of-fit test of the data to the bivariate normal was not carried out because of problems of aggregation with only 27 data points.

The estimated linear regression coefficients are shown in table III.3, together with the 95-percent confidence intervals for these coefficients. The very wide range of these intervals, which all include zero, reflects the relatively weak correlation and the small sample of this pilot study. The computed and critical t-values are the same as for correlation coefficients.

Multiple correlation coefficients for some combinations of scores as the independent variables, in table III.4, were not statistically significant at the 5-percent level (calculated F-values are less than the critical values of F). The highest coefficient, 0.3673, explains less than 14 percent (0.3673^2) of the variance in production. The use of the F-test to determine the significance of the multiple correlation coefficients computed is described in reference 4.

Multiple linear regression coefficients with the production rate as the dependent variable and the same combinations of independent variables, as shown in table III.5, are not statistically significant at the 5-percent level. (The calculated t-values are within the critical t-values.) The 95-percent confidence intervals, which all contain zero, are also listed.

Multiple linear regression coefficients with the error rate as the dependent variable and the same combinations of independent variables, as shown in table III.6, are not statistically significant at the 5-percent level. (The calculated t-values are within the critical t-values.) The 95-percent confidence limits, which all contain zero, are also shown.

This pilot study showed that a larger study is feasible and should probably be undertaken if it appears realistic to expect to be able to assign applicants on the basis of their test scores. Although the sample was too small to draw definitive conclusions, correlations between production or quality and test scores appeared low. However, the estimated regression coefficients seemed high enough to offer prospects of modest gains through careful application of test scores to coder selection in an adequate labor market.

Table III.1. Test Scores, Production Rates, and Quality Data

Coder number	Composite Scores		Civil Service rating	Training score	Average total weekly production	Average error rate
	Part 800	Part 801A				
1.....	47	47	79.0	96.6	1,169.0	12.08
2.....	56	41	80.1	92.1	2,805.5	9.22
3.....	58	27	75.6	97.2	3,004.0	7.87
4.....	56	66	89.5	92.8	2,742.6	12.14
5.....	56	60	92.3	95.0	1,695.1	8.68
6.....	77	55	93.3	97.9	2,149.8	7.03
7.....	66	50	87.3	96.9	2,070.5	5.31
8.....	60	51	85.4	96.3	1,286.5	11.93
9.....	58	63	89.1	97.6	1,865.9	5.57
10.....	58	48	83.5	92.0	2,286.2	8.57
11.....	46	51	80.1	93.5	928.0	8.30
12.....	62	27	77.1	93.8	2,671.6	9.32
13.....	37	55	78.3	96.0	2,606.8	6.23
14.....	38	65	82.4	96.7	1,931.6	5.71
15.....	52	37	77.1	93.6	1,758.2	6.52
16.....	51	34	75.6	93.4	2,234.9	8.66
17.....	61	55	87.3	95.0	4,264.4	10.48
18.....	36	60	79.8	87.8	2,391.3	5.37
19.....	44	75	88.4	93.7	2,195.9	10.14
20.....	51	36	76.4	95.4	2,321.4	9.73
21.....	67	24	77.9	97.3	3,188.9	11.48
22.....	71	72	96.3	98.4	4,071.2	7.32
23.....	47	54	81.6	97.8	3,210.7	6.76
24.....	60	46	83.5	94.6	1,297.0	6.04
25.....	48	49	80.1	96.7	1,981.3	7.18
26.....	41	39	73.8	90.2	2,629.8	8.75
27.....	57	63	88.8	94.8	3,425.9	7.03

Table III.2. Pearson's Product-Moment Correlation Coefficients

Score	Production		Error rate	
	Correlation coefficient	t-value ¹	Correlation coefficient	t-value ¹
Part 800.....	0.2581	1.3358	0.1421	0.7177
Part 801A.....	.0455	.2277	-.2034	-1.0387
Civil Service rating.....	.1618	.8198	-.0715	-.3584
Training score.....	.0832	.4175	-.0598	-.2995

¹At $\alpha = 0.25$ and 25 degrees of freedom, the critical t-value is ± 2.060 .

Table III.3. Regression Coefficients

Score	Production			
	Regression coefficient (b) ¹	t-value	95-percent confidence interval	
Part 800.....	20.5541	1.3358	-9.6017, 50.7099	
Part 801A.....	2.7347	.2277	-20.8157, 26.2851	
Civil Service rating.....	21.7286	.8198	-30.2235, 73.6808	
Training.....	26.8869	.4175	-99.3216, 153.095	
	Error Rate			
	Regression coefficient (b) ²	t-value	95-percent confidence interval	
	Part 800.....	0.0294	0.7177	-0.0508, 0.1096
	Part 801A.....	-.0317	-.2034	-.0917, .0282
Civil Service rating.....	-.0249	-.0715	-.1612, .1114	
Training.....	-.0502	-.0598	-.3783, .2780	

¹Y=a + bX when Y is the production rate and X is the score.

²Y=a + bX when Y is the error rate and X is the score.

Table III.4. Multiple Correlation Coefficients

Independent variables ¹	Production		Error	
	Coefficient	F-value ²	Coefficient	F-value ²
A & B.....	0.2707	0.6062	0.2338	0.4433
A & C.....	.2604	.5577	.2201	.6109
C & D.....	.1648	.3350	.0810	.0793
A, B, & C.....	.3616	.8273	.2454	.4913
A, B, & D.....	.2754	.6292	.2603	.5572
A, C, & D.....	.2640	.5744	.2502	.3673
A, B, C, & D.....	.3673	.8577	.2691	.4294

¹A-Part 800 (clerical and mathematical skills)

B-Part 801A (verbal comprehension)

C-Civil Service rating

D-Training score

²At $\alpha=0.05$, the critical values of F are:

F(1,25) = 4.24

F(3,23) = 3.03

F(2,24) = 3.40

F(4,22) = 2.82

Table III.5. Multiple Linear Regression Coefficients/Dependent Variables: Production Rate

Combination of scores ¹	Regression coefficients				t-values ²				95-percent confidence intervals			
	A	B	C	D	A	B	C	D	A	B	C	D
A & B.....	21.4488	4.9474	(X)	(X)	1.358	0.415	(X)	(X)	-9.5092 52.4069	-18.4344 28.3292	(X)	(X)
A & C.....	18.9229	(X)	5.3665	(X)	1.035	(X)	0.174	(X)	-16.9012 54.7470	(X)	-55.0554 65.7884	(X)
C & D.....	(X)	(X)	20.2528	10.6597	(X)	(X)	.706	0.155	(X)	(X)	-35.9533 76.4589	-124.553 145.873
A, B, & C.....	94.7877	79.8869	-196.6928	(X)	1.541	1.290	-1.233	(X)	-25.7525 215.328	-41.4670 201.241	-509.368 115.983	(X)
A, B, & D.....	23.6198	5.3948	(X)	-18.6226	1.294	.439	(X)	-.253	-12.1482 59.3877	-18.7065 29.4961	(X)	-162.689 125.444
A, C, & D.....	20.4343	(X)	6.2586	-15.8831	1.026	(X)	.197	-.216	-18.6163 59.4849	(X)	-55.9307 68.4480	-160.161 128.394
A, B, C, & D..	98.6663	81.5989	-199.6930	-23.6757	1.545	1.288	-1.225	-.325	-26.4924 223.825	-46.6152 205.813	-519.143 119.758	-166.427 119.075

X Not applicable.

¹A-Part 800 (clerical and mathematical skills)

B-Part 801A (verbal comprehension)

C-Civil Service rating

D-Training score

²The regression coefficients may be tested for significance by using a t-test. The derived t-score is then compared to a t-value at the desired α -level with the degrees of freedom equal to (n-q), where q is the number of variables in the equation at $\alpha=0.05$.

$$t_{24} = +2.064$$

$$t_{23} = +2.069$$

$$t_{22} = +2.074$$

Table III.6. Multiple Linear Regression Coefficients/Dependent Variables: Error Rate

Combination of scores ¹	Regression coefficients				t-values				95-percent confidence intervals			
	A	B	C	D	A	B	C	D	A	B	C	D
A & B.....	0.0241	-0.0293	(X)	(X)	0.582	-0.936	(X)	(X)	-0.0571 .1052	-0.0906 .0320	(X)	(X)
A & C.....	.0501	(X)	-0.0683	(X)	1.046	(X)	-0.844	(X)	-.0438 .1441	(X)	-0.2267 .0902	(X)
C & D.....	(X)	(X)	-.0202	-0.0340	(X)	(X)	-.269	-0.188	(X)	(X)	-.1676 .1272	-0.3886 .3207
A, B, & C.....	-.0350	-.0896	.1584	(X)	-.211	-.536	.368	(X)	-.3603 .2903	-.4172 .2379	-.6855 1.0023	(X)
A, B, & D.....	.0368	-.0266	(X)	-.1089	.773	-.831	(X)	-.568	-.0565 .1300	-.0895 .0362	(X)	-.4845 .2667
A, C, & D.....	.0609	(X)	-.0619	-.1130	1.173	(X)	-.749	-.589	-.0409 .1626	(X)	-.2239 .1001	-.4890 .2629
A, B, C, & D..	-.0178	-.0820	.1451	-.1052	-.103	-.481	.331	-.537	-.3542 .3187	-.4159 .2519	-.7135 1.0038	-.4889 .2785

X Not applicable.

¹A-Part 800 (clerical and mathematical skills)

B-Part 801A (verbal comprehension)

C-Civil Service rating

D-Training score

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Population Questions on 15-Percent and 5-Percent Questionnaires

1960 and 1970

Q 2	
①	②
○ ○ 0 ○ ○	
○ ○ 1 ○ ○	
○ ○ 2 ○ ○	
○ ○ 3 ○ ○	
○ ○ 4 ○ ○	
○ ○ 5 ○ ○	
○ ○ 6 ○ ○	
○ ○ 7 ○ ○	
○ ○ 8 ○ ○	
○ ○ 9 ○ ○	
○ ○ A ○ ○	

1960 and 1970

Q4				
(1)		(2)		
○ ○	0	○ ○	○ ○	
○ ○	1	○ ○	○ ○	
○ ○	2	○ ○	○ ○	
○ ○	3	○ ○	○ ○	
○ ○	4	○ ○	○ ○	
○ ○	5	○ ○	○ ○	
○ ○	6	○ ○	○ ○	
○ ○	7	○ ○	○ ○	
○ ○	8	○ ○	○ ○	
○ ○	9	○ ○	○ ○	

1960 and 197026

Appendix A. General Coding Questions—Continued

Population Questions on 15-Percent and 5-Percent Questionnaires

40. Earnings in 1969— Fill parts a, b, and c for everyone who worked any time in 1969 even if he had no income.
(If exact amount is not known, give best estimate.)

a. How much did this person earn in 1969 in wages, salary, commissions, bonuses, or tips from all jobs?
(Before deductions for taxes, bonds, dues, or other items.)

\$ _____ .00
(Dollars only)
OR ☐ None

b. How much did he earn in 1969 from his own nonfarm business, professional practice, or partnership?
(Net after business expenses. If business lost money, write "Loss" above amount.)

\$ _____ .00
(Dollars only)
OR ☐ None

c. How much did he earn in 1969 from his own farm?
(Net after operating expenses. Include earnings as a tenant farmer or sharecropper. If farm lost money, write "Loss" above amount.)

\$ _____ .00
(Dollars only)
OR ☐ None

41. Income other than earnings in 1969— Fill parts a, b, and c.
(If exact amount is not known, give best estimate.)

a. How much did this person receive in 1969 from Social Security or Railroad Retirement?

\$ _____ .00
(Dollars only)
OR ☐ None

b. How much did he receive in 1969 from public assistance or welfare payments?
Include aid for dependent children, old age assistance, general assistance, aid to the blind or totally disabled.
Exclude separate payments for hospital or other medical care.

\$ _____ .00
(Dollars only)
OR ☐ None

c. How much did he receive in 1969 from all other sources?
Include interest, dividends, veterans' payments, pensions, and other regular payments.
(See instruction sheet.)

\$ _____ .00
(Dollars only)
OR ☐ None

1960 and 1970

40a.	40b.
<input type="radio"/> 0	<input type="radio"/> 0
<input type="radio"/> 1	<input type="radio"/> 1
<input type="radio"/> 2	<input type="radio"/> 2
<input type="radio"/> 3	<input type="radio"/> 3
<input type="radio"/> 4	<input type="radio"/> 4
<input type="radio"/> 5	<input type="radio"/> 5
<input type="radio"/> 6	<input type="radio"/> 6
<input type="radio"/> 7	<input type="radio"/> 7
<input type="radio"/> 8	<input type="radio"/> 8
<input type="radio"/> 9	<input type="radio"/> 9
<input type="radio"/> A	<input type="radio"/> A
40c.	41a.
<input type="radio"/> 0	<input type="radio"/> 0
<input type="radio"/> 1	<input type="radio"/> 1
<input type="radio"/> 2	<input type="radio"/> 2
<input type="radio"/> 3	<input type="radio"/> 3
<input type="radio"/> 4	<input type="radio"/> 4
<input type="radio"/> 5	<input type="radio"/> 5
<input type="radio"/> 6	<input type="radio"/> 6
<input type="radio"/> 7	<input type="radio"/> 7
<input type="radio"/> 8	<input type="radio"/> 8
<input type="radio"/> 9	<input type="radio"/> 9
<input type="radio"/> A	<input type="radio"/> A
41b.	41c.
<input type="radio"/> 0	<input type="radio"/> 0
<input type="radio"/> 1	<input type="radio"/> 1
<input type="radio"/> 2	<input type="radio"/> 2
<input type="radio"/> 3	<input type="radio"/> 3
<input type="radio"/> 4	<input type="radio"/> 4
<input type="radio"/> 5	<input type="radio"/> 5
<input type="radio"/> 6	<input type="radio"/> 6
<input type="radio"/> 7	<input type="radio"/> 7
<input type="radio"/> 8	<input type="radio"/> 8
<input type="radio"/> 9	<input type="radio"/> 9
<input type="radio"/> A	<input type="radio"/> A

Appendix A. General Coding Questions—Continued

Population Questions on 15-Percent Questionnaire

14. What country was his father born in?
☐ United States
 OR

 (Name of foreign country; or Puerto Rico, Guam, etc.)

15. What country was his mother born in?
☐ United States
 OR

 (Name of foreign country; or Puerto Rico, Guam, etc.)

17. What language, other than English, was spoken in this person's home when he was a child? Fill one circle.
☐ Spanish ☐ Other—
☐ French Specify _____
☐ German ☐ None, English only

1960 and 1970

19a. Did he live in this house on April 1, 1965? If in college or Armed Forces in April 1965, report place of residence there.
☐ Born April 1965 or later { Skip to 26
☐ Yes, this house
☐ No, different house

b. Where did he live on April 1, 1965?
 (1) State, foreign country, U.S. possession, etc. _____
 (2) County _____
 (3) Inside the limits of a city, town, village, etc.? ☐ Yes ☐ No
 (4) If "Yes," name of city, town, village, etc. _____

1960 and 1970

14-15

U
S
T
F
Ø
1
2
3
4
5
6
7
8
9

17.	19.	Ø	Ø	Ø	Ø	Ø	Ø	Ø	Ø
Ø	1	Ø	1	Ø	Ø	Ø	Ø	Ø	Ø
Ø	2	Ø	2	Ø	Ø	Ø	Ø	Ø	Ø
Ø	3	Ø	3	Ø	Ø	Ø	Ø	Ø	Ø
Ø	4	Ø	4	Ø	Ø	Ø	Ø	Ø	Ø
Ø	5	Ø	5	Ø	Ø	Ø	Ø	Ø	Ø
Ø	6	Ø	6	Ø	Ø	Ø	Ø	Ø	Ø
Ø	7	Ø	7	Ø	Ø	Ø	Ø	Ø	Ø
Ø	8	Ø	8	Ø	Ø	Ø	Ø	Ø	Ø
Ø	9	Ø	9	Ø	Ø	Ø	Ø	Ø	Ø

Population Questions on 5-Percent Questionnaire

24. If this person has ever been married—
 a. Has this person been married more than once?
☐ Once ☐ More than once
 ↓ ↓
 b. When did he get married? When did he get married for the first time?

 Month Year Month Year
 c. If married more than once— Did the first marriage end because of the death of the husband (or wife)?
☐ Yes ☐ No

1970

36. In April 1965, what State did this person live in?
☐ This State
 OR

 (Name of State or foreign country; or Puerto Rico, etc.)

1970

24b.	I II	
Ø	Ø	
III IV		
Ø		36.
Ø	Ø	Ø
1	Ø	1
2	Ø	2
3	Ø	3
4	Ø	4
5	Ø	5
6	Ø	6
7	Ø	7
8	Ø	8
9	Ø	9

Appendix A. General Coding Questions—Continued

Housing Questions on 15-Percent and 5-Percent Questionnaires

	a1.	a2.	a3.	a4.	a5.
△					
If the address shown above has the wrong apartment identification, please write the correct apartment number or location here:					

1970

a5.	Serial number
0	0 0 0 0 0
1	1 0 0 0 1
2	2 0 0 0 2
3	3 0 0 0 3
4	4 0 0 0 4
5	5 0 0 0 5
6	6 0 0 0 6
7	7 0 0 0 7
8	8 0 0 0 8
9	9 0 0 0 9

H12. Answer this question if you pay rent for your living quarters.

a. If rent is paid by the month—

What is the monthly rent?

Write amount here → \$ _____ .00 (Nearest dollar)

and

Fill one circle →

- ☐ Less than \$30
- ☐ \$30 to \$39
- ☐ \$40 to \$49
- ☐ \$50 to \$59
- ☐ \$60 to \$69
- ☐ \$70 to \$79
- ☐ \$80 to \$89
- ☐ \$90 to \$99
- ☐ \$100 to \$119
- ☐ \$120 to \$149
- ☐ \$150 to \$199
- ☐ \$200 to \$249
- ☐ \$250 to \$299
- ☐ \$300 or more

b. If rent is not paid by the month—

What is the rent, and what period of time does it cover?

\$ _____ .00 per _____

(Nearest dollar) (Week, half-month, year, etc.)

1970

H 12
0 0 0 0
1 0 0 0
2 0 0 0
3 0 0 0
4 0 0 0
5 0 0 0
6 0 0 0
7 0 0 0
8 0 0 0
9 0 0 0

H13. Answer question H13 if you pay rent for your living quarters.

In addition to the rent entered in H12, do you also pay for—

a. Electricity?

- ☐ Yes, average monthly cost is → \$ _____ .00
- ☐ No, included in rent
- ☐ No, electricity not used

b. Gas?

- ☐ Yes, average monthly cost is → \$ _____ .00
- ☐ No, included in rent
- ☐ No, gas not used

c. Water?

- ☐ Yes, yearly cost is → \$ _____ .00
- ☐ No, included in rent or no charge

d. Oil, coal, kerosene, wood, etc.?

- ☐ Yes, yearly cost is → \$ _____ .00
- ☐ No, included in rent
- ☐ No, these fuels not used

1970

H 13	
a.	b.
0 0 0 0	0 0 0 0
1 0 0 0	1 0 0 0
2 0 0 0	2 0 0 0
3 0 0 0	3 0 0 0
4 0 0 0	4 0 0 0
5 0 0 0	5 0 0 0
6 0 0 0	6 0 0 0
7 0 0 0	7 0 0 0
8 0 0 0	8 0 0 0
9 0 0 0	9 0 0 0
c.	d.
0 0 0 0	0 0 0 0
1 0 0 0	1 0 0 0
2 0 0 0	2 0 0 0
3 0 0 0	3 0 0 0
4 0 0 0	4 0 0 0
5 0 0 0	5 0 0 0
6 0 0 0	6 0 0 0
7 0 0 0	7 0 0 0
8 0 0 0	8 0 0 0
9 0 0 0	9 0 0 0

Appendix B. Place-of-Work Coding Question on 15-Percent Questionnaire

29c. Where did he work last week?
If he worked in more than one place, print where he worked most last week.
If he travels about in his work or if the place does not have a numbered address, see instruction sheet.

(1) Address (Number and street name) _____

(2) Name of city, town, village, etc. _____

(3) Inside the limits of this city, town, village, etc.?
☐ Yes
☐ No

(4) County _____

(5) State _____ (6) ZIP Code _____

In 1960, questions 2, 3, 4, and 5 were asked.
 In 1970, questions 1 and 6 were added.

29c.

A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

29c.

0	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

29c.

0	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix C. Industry, Occupation, and Class-of-Worker Questions

Questions on 15-Percent and 5-Percent Questionnaires

33-35. Current or most recent job activity

Describe clearly this person's chief job activity or business last week, if any. If he had more than one job, describe the one at which he worked the most hours.

If this person had no job or business last week, give information for last job or business since 1960.

33. Industry

- a. For whom did he work? If now on active duty in the Armed Forces, print "AF" and skip to question 36.

(Name of company, business, organization, or other employer)

- b. What kind of business or industry was this?

Describe activity at location where employed.

(For example: Junior high school, retail supermarket, dairy farm, TV and radio service, auto assembly plant, road construction)

- c. Is this mainly— (Fill one circle).

- ☐ Manufacturing ☐ Retail trade
☐ Wholesale trade ☐ Other (agriculture, construction, service, government, etc.)

34. Occupation

- a. What kind of work was he doing?

(For example: TV repairman, sewing machine operator, spray painter, civil engineer, farm operator, farm hand, junior high English teacher)

- b. What were his most important activities or duties?

(For example: Types, keeps account books, files, sells cars, operates printing press, cleans buildings, finishes concrete)

- c. What was his job title?

1960 and 1970

1970

1960 and 1970

1970

Class of Worker

35. Was this person— (Fill one circle)

Employee of private company, business, or individual, for wages, salary, or commissions... ☐

Federal government employee ☐

State government employee ☐

Local government employee (city, county, etc.)... ☐

Self-employed in own business, professional practice, or farm—

Own business not incorporated ☐

Own business incorporated ☐

Working without pay in family business or farm ☐

1960 and 1970

33.	A B C	34.	N P Q
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Appendix C. Industry, Occupation, and Class-of-Worker Questions—Continued

Questions on 5-Percent Questionnaire

38. If "Yes" for "Working at a job or business" in question 37—
Describe this person's chief activity or business in April 1965.

a. What kind of business or industry was this?

b. What kind of work was he doing (occupation)?

c. Was he—

An employee of a private company or government agency... ☐

Self-employed or an unpaid family worker..... ☐

1970

38a.			38b.		
A	B	C	N	P	Q
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Appendix D. Optimum Allocation of the Sample

Based on William G. Cochran, *Sampling Techniques*, John Wiley and Sons, Inc., 1963, page 97.

Various sources provided the following information for approximating the error rate (p) for occupation and industry coding, the variances, and the costs:

estimated error rate = $p = .053$

between ED relvariance (p) = 0.50

within ED relvariance (p) = 4.00

cost of selecting an ED = \$0.62

cost of selecting a questionnaire and coding = \$1.50

total funds available = \$10,000

(General costs are \$1,000, so that \$9,000 can be used for the sample.)

Let m = number of ED's in the sample

$k = \bar{k}m$ = number of questionnaires in the sample

where \bar{k} = average number of sample questionnaires per ED

The cost function is

$$9,000 = 0.62 m + 1.50 k \quad (1)$$

The relvariance of the sample estimate of the proportion of errors (p) is

$$\text{relvar } (p) = 0.5/m + 4.0/k \quad (2)$$

To obtain the optimum allocation of the sample, divide the right side of equation (1) term by term by the right side of equation (2), and set the ratios equal:

$$1.24 m^2 = .375 k^2$$

$$k^2 = 3.31 m^2$$

$$k = 1.8 m$$

$$\text{and } \bar{k} = k/m = 1.8$$

Round \bar{k} to 2.0, and substitute in (1):

$$9,000 = 0.62 m + 3 m$$

$$\text{so that } m = 9,000/3.62 = 2,500$$

$$\text{and } k = 2 m = 5,000$$

The reliability of a sample of this size and type is given by equation (2):

$$\begin{aligned} \text{relvar } (p) &= .5/2,500 + 4.0/5,000 \\ &= .0002 + .0008 = .0010 \end{aligned}$$

and the coefficient of variation of the estimate (p) is the square root of this number, or about 3.1 percent. It is expected that roughly 80 percent of the relvariance will be within ED's.

If ED's are selected with probability proportional to size, the actual number of ED's selected will be somewhat larger than 2,500; in this study 2,700 ED's were selected, and the final number of questionnaires in the sample was 5,400.

When the study was completed, it was determined that the actual coefficient of variation of the estimate for occupation and industry coding (the operation on which the design was based) was 2.4 percent (.21/8.9), with approximately 91 percent of the variation within ED's. The coefficient of variation for general coding was 5.5 percent (.04/.73) and for place-of-work coding 5.0 percent (.49/9.9). In general coding, 88 percent of the variability was within ED's; for place-of-work coding this figure was 67 percent.

Appendix E. Estimation of Error Rates and Variances

The estimates of all error rates, p , were determined as follows:

Let e_i = number of errors in the i th ED.

n_i = number of items in the i th ED.

m = number of ED's.

$$\text{then } p = \frac{\frac{\sum_{i=1}^m e_i}{m}}{\sum_{i=1}^m n_i}$$

The total variances, $S_1^2(p)$, for the estimates of total error rate, state error rate, and error rates for those items appearing on all questionnaires and on the 5-percent questionnaires were determined as follows:

$$S_1^2(p) = \frac{1}{\left(\sum_{i=1}^m n_i\right)^2} \left\{ \sum_{i=1}^m e_i^2 + p^2 \sum_{i=1}^m n_i^2 - 2p \sum_{i=1}^m e_i n_i \right\}$$

The within ED variance, $S_w^2(p)$, of the estimate of the total error rate was determined as follows:

Let e_{ij} = number of errors in the j th household in the i th ED, $j = 1, 2$.

n_{ij} = number of items in the j th household in the i th ED.

$$S_w^2(p) = \frac{1}{\left(\sum_{i=1}^m n_i\right)^2} \left\{ \sum_{i=1}^m \left(e_{i1} - e_{i2} \right)^2 + p^2 \sum_{i=1}^m \left(n_{i1} - n_{i2} \right)^2 - 2p \sum_{i=1}^m \left(e_{i1} - e_{i2} \right) \left(n_{i1} - n_{i2} \right) \right\}$$

The total variances, $S_2^2(p)$, for the estimates of the error rates of those items only appearing on the 15-percent questionnaires were determined as follows:

Let m_1 = number of ED's from which two 15-percent questionnaires were selected.

m_2 = number of ED's from which one 15-percent questionnaire and one 5-percent questionnaire were selected.

$$\begin{aligned} S_2^2(p) = & \frac{1}{\left(\sum_{i=1}^m n_i\right)^2} \left\{ \sum_{i=1}^{m_1} \left(e_i - \frac{\sum_{i=1}^{m_1} e_i}{m_1} \right)^2 + \right. \\ & p^2 \sum_{i=1}^{m_1} \left(n_i - \frac{\sum_{i=1}^{m_1} n_i}{m_1} \right)^2 - 2p \sum_{i=1}^{m_1} \left(e_i - \frac{\sum_{i=1}^{m_1} e_i}{m_1} \right) n_i + \\ & \sum_{i=1}^{m_2} \left(e_i - \frac{\sum_{i=1}^{m_2} e_i}{m_2} \right)^2 + p^2 \sum_{i=1}^{m_2} \left(n_i - \frac{\sum_{i=1}^{m_2} n_i}{m_2} \right)^2 - \\ & \left. 2p \sum_{i=1}^{m_2} \left(e_i - \frac{\sum_{i=1}^{m_2} e_i}{m_2} \right) n_i \right\} \end{aligned}$$

The within ED variance $S_w^2(p)$ was determined as follows:

$$\begin{aligned} S_w^2(p) = & \frac{3}{\left(\sum_{i=1}^{m_1} n_i + \sum_{i=1}^{m_2} n_i\right)^2} \left\{ \sum_{i=1}^{m_1} \sum_{j=1}^2 \left(e_{ij} - \frac{e_i}{2} \right)^2 + \right. \\ & p^2 \sum_{i=1}^{m_1} \sum_{j=1}^2 \left(n_{ij} - \frac{n_i}{2} \right)^2 - \\ & \left. 2p \sum_{i=1}^{m_1} \sum_{j=1}^2 \left(e_{ij} - \frac{e_i}{2} \right) n_{ij} \right\} \end{aligned}$$

Appendix F. Interpretation and Estimation of the Confidence Limits for the Range

Interpretation

In this study the range is the absolute difference in percentage points between the highest and lowest regional error rates. The interpretation of a 95-percent level (or, in general, a P-level) confidence interval on an estimate of the range is that if such an interval were constructed, by the methods described below, for all possible samples in the population selected by the same sample design and processed by equivalent procedures, 95 percent (or, in general, P percent) of these intervals would include the value of the range determined by averaging estimates from all samples. This average of estimates over all samples would yield the same result as a complete census of the population which followed the procedures of this study; the equivalent census value might differ from the unknown "true" population value as the result of procedural biases introduced in the study. For a particular sample the chances are 95 out of 100 (or, in general, P percent) that the interval constructed by the methods below would enclose the census equivalent value.

Estimation

The confidence limits on the range can be estimated by application of the S-method of judging all contrasts (see Henry Scheffe, *Analysis of Variance*, Third Printing, John Wiley and Sons, Inc., 1963, p. 67) where a contrast is a linear function of

the parameters β_i , expressed as $\sum_{i=1}^I c_i \beta_i$ with known constant

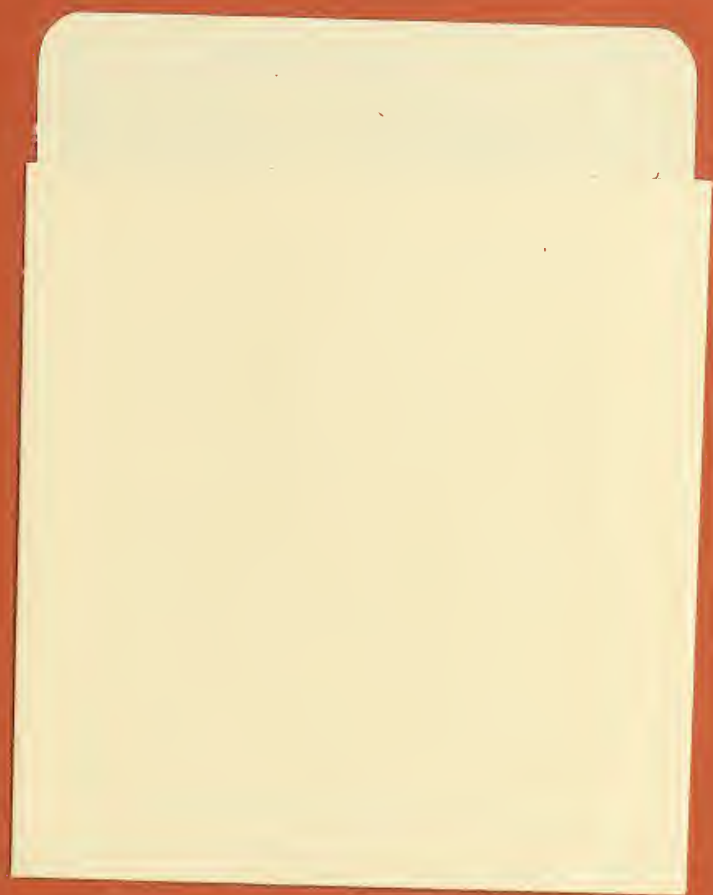
coefficients, c_i , subject to the condition $\sum_{i=1}^I c_i = 0$.

Approximate the estimated error rate, X_i , to be independently

normally distributed with standard errors, i.e., square root of variance, V_i , as estimated and means equal to the (unknown) population means, U_i , for region $i = 1, 2, \dots, n$. Since the differences of the estimated error rates, $X_i - X_j = Y_{ij}$, and the differences of the population means, $V_i - V_j = D_{ij}$, $i \neq j$, are contrasts, we may copy the arguments of the theories in Scheffe to obtain the following:

The probability is p that the inequalities, $Y_{ij} - t^{1/2} S_{ij} \leq D_{ij} \leq Y_{ij} + t^{1/2} S_{ij}$, are simultaneously satisfied for all $i \neq j$ for $S_{ij} = \sqrt{V_i + V_j}$, and $t =$ upper p point of $\chi^2_{(n-1)}$.

This implies that for all $i \neq j$ the inequalities $|Y_{ij}| - t^{1/2} S_{ij} \leq |D_{ij}| \leq |Y_{ij}| + t^{1/2} S_{ij}$ hold, or, since $|D_{ij}| \geq 0$, that the stronger inequalities $\max_{i \neq j} (0, |Y_{ij}| - t^{1/2} S_{ij}) \leq |D_{ij}| \leq |Y_{ij}| + t^{1/2} S_{ij}$ also hold. This implies that $\max_{i \neq j} |D_{ij}| \leq \max_{i \neq j} (|Y_{ij}| + t^{1/2} S_{ij})$ and that $\max_{i \neq j} (0, |Y_{ij}| - t^{1/2} S_{ij}) \leq \max_{i \neq j} |D_{ij}|$ and may be stated as $\max_{i \neq j} (0, \max_{i \neq j} (|Y_{ij}| - t^{1/2} S_{ij})) \leq \max_{i \neq j} |D_{ij}| \leq \max_{i \neq j} (|Y_{ij}| + t^{1/2} S_{ij})$. Since this occurs with probability p or greater by implication, this is a p -level confidence interval. (Note: The lower limit will be 0 if and only if the intervals corresponding to the original probability statement all include 0.)



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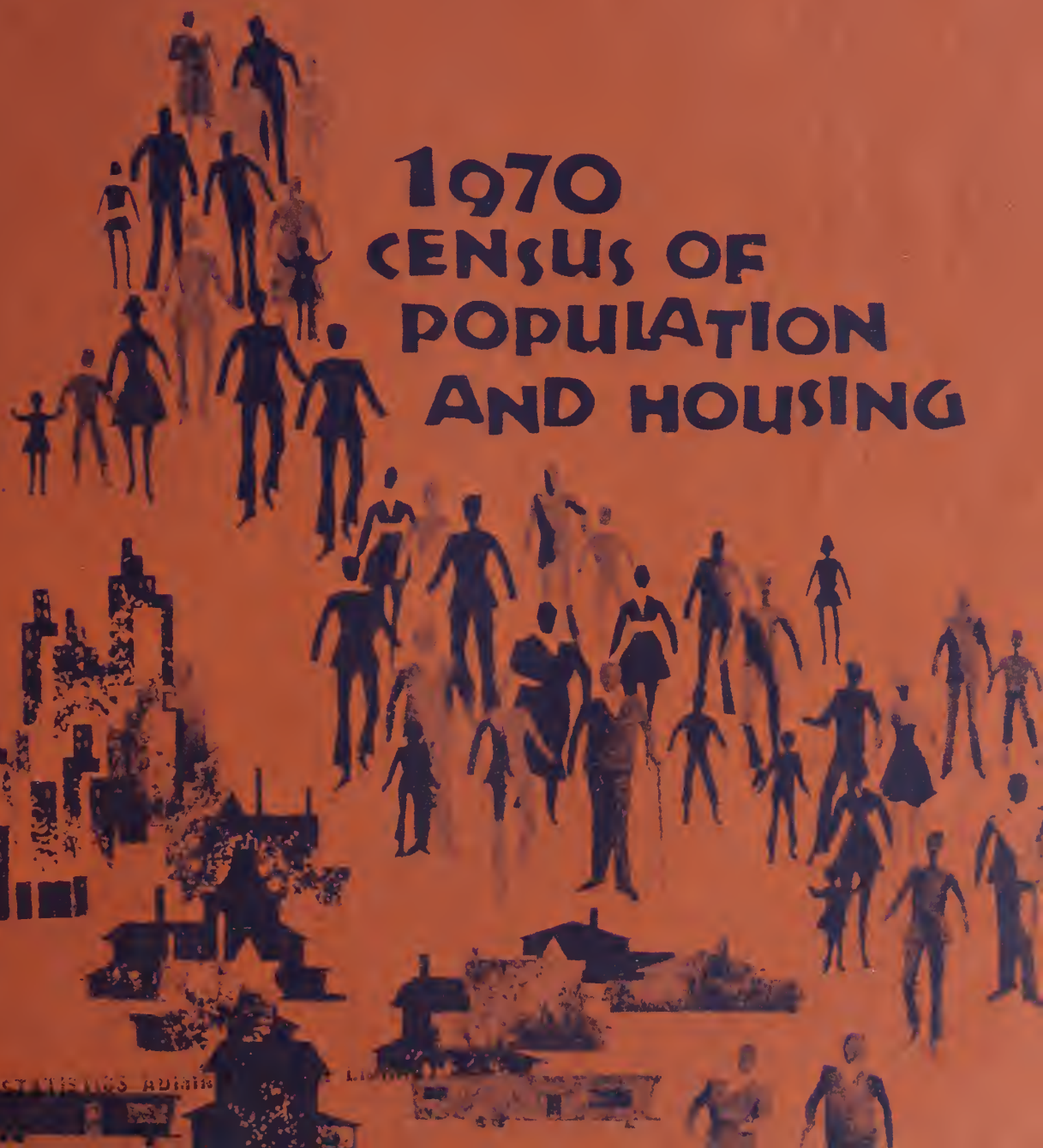
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Evaluation and Research Program

Accuracy of Data for Selected Population Characteristics as Measured by Reinterviews

PHC(E)-9



1970 CENSUS OF POPULATION AND HOUSING

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Social and Economic
Statistics Administration

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SOCIAL AND ECONOMIC STATISTICS ADMINISTRATION

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Daniel B. Levine, Associate Director for Demographic Fields

**Alva L. Finkner, Associate Director for Statistical
Standards and Methodology**

STATISTICAL METHODS DIVISION

Morton Boisen, Chief

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for Selected Population
Characteristics as
Measured by Reinterviews

Issued August 1974



Preface

This is one of a series of reports on results of the Evaluation and Research Program of the 1970 Census of Population and Housing. The program includes a variety of studies, each designed to produce data on the accuracy of selected subject matter or on the effectiveness of specific methodological features of the census-taking process. The major findings and results from these studies are being published in the PHC(E) series of reports.

In this report data are presented on the accuracy of reporting for selected population characteristics as measured in a large scale reinterview program, carried out shortly after the 1970 census field work was completed. Response error data are presented for three population characteristics which were collected for the first time in the 1970 census: Spanish origin or descent, mother tongue, and vocational training. In addition, response error data are presented for six population characteristics which had been collected in previous decennial censuses: Nativity, citizenship, year of immigration, country of birth of parents, year moved into present house, and number of children ever born.

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INTRODUCTION

This report presents information on the accuracy of data collected in the 1970 census for selected population characteristics. The accuracy of these data are affected by measurement errors which arise from a number of different sources—missing housing units or persons will result in undercounts (see references 1, 2, and 3), personal characteristics may be erroneously reported, people fail to report some of the information requested of them and adjustments for these persons may introduce errors, etc.

This report is devoted exclusively to the effects on the quality of the census data of only one of these sources—error arising from the erroneous reporting of personal characteristics on the census questionnaire. The measurement of this error is based on reinterviews conducted with a sample of persons originally enumerated in the census. The reinterview data were obtained in a study established for this purpose—the Content Reinterview Study—and detailed discussion of the survey design and operations is given in part 4.

The reinterview method is only one of a number of methods used to evaluate the erroneous reporting of personal characteristics. Other types of studies utilizing a case-by-case comparison include record checks—the comparison of census data with data obtained from an independent record source such as IRS data—and comparison of census data with that obtained from other sample surveys such as the Current Population Survey. (These types of studies were also included in the 1970 Evaluation and Research Program. Results from these will be reported in later publications in the PHC(E) series.)

In developing the 1970 Evaluation and Research Program, every population characteristic included in the 1970 census was reviewed and considered for response error evaluation, either by the reinterview method or by one of the other methods cited above. The characteristics selected for inclusion in the reinterview study were those for which reinterview appeared to provide an adequate vehicle for measuring response error and for which another study could not produce the response error data more reliably or at less cost.

This analysis includes data for all of the population characteristics evaluated by the reinterview method: Spanish origin or descent, mother tongue, vocational training, nativity, country of birth of parents, citizenship, year of immigration, year moved into present house, and number of children ever born.

In the evaluation work of the Census Bureau, two general types of reinterview studies have been used. In the first type of study each person is viewed as having a population of responses to a specific question which can be generated by independent repetition of the same survey procedure under the same general conditions. The general conditions include, at the least, the questionnaire used, the method of obtaining responses, the method of recording responses, and the sponsorship of the survey. The initial census or survey obtains one of these responses while the reinterview obtains a second, by applying the same survey procedures under the same general conditions as existed in

the initial interview. The two responses are assumed to have been selected randomly from the population of responses and are compared to produce estimates of the average trial-to-trial response variability, which is commonly referred to as simple response variance.

The second type of reinterview study is designed to obtain more accurate data than was feasible in the initial interview. It is assumed that the deficiencies of the original survey can be minimized in the reinterview by application of survey procedures such as using better trained and more highly qualified interviewers, choosing the most knowledgeable respondents to provide the data, applying detailed questioning sequences to probe those areas where the questions or instructions may have been ambiguous or inadequate, and reconciling different responses collected in the two interviews. These data are used as a standard of comparison for the initial census or survey responses and, therefore, shed light on systematic errors in the census or survey arising from problems in questionnaire wording, interviewer attitude, etc. The latter reinterview technique was used to evaluate the accuracy of the data collected in the census for the nine population characteristics mentioned above.

It is clear, however, that neither of these two types of studies, in application, can meet their theoretical objectives. In both cases the estimates of response error have a tendency to be understated. In the first case the conditions of the original interview cannot be duplicated in the reinterview to yield an independent response under the same general survey conditions. For example, if the respondent answered the question in the census, he may answer in the reinterview on the basis of his reply to the census question rather than making an independent attempt to answer the question. The second type of reinterview study is unlikely to obtain the "truth" in all cases since the respondent may deliberately falsify his responses, or he simply may not know the answer to a particular question. Further, the Census Bureau shares with all demographic survey organizations the problems of noninterviews. In reinterview studies, study plans usually cannot be completed for all sample cases. For example, in carrying through the 1970 reinterview study, the study plan for about 25 percent of the persons selected for reinterview could not be completed. A more detailed discussion of the noninterview and matching problems associated with this study is provided in part 5. Even with these limitations, however, reinterview is a valuable method of evaluation. For example, following the 1950, the 1960, and the 1970 decennial censuses, reinterview studies were major components of the evaluation and research programs and produced useful data on response errors and their distributions. (See references 4 through 13.)

Although there is considerable emphasis on geographic detail in the census of population, an evaluation program cannot provide a separate evaluation of each area for which census data are presented without incurring a cost many times that of the census itself. Therefore, the analysis of the accuracy of data presented here is devoted primarily to national statistics, and as a result the measures of error do not necessarily apply to States, counties, cities, or other small areas.

PART 1

MEASURES OF RESPONSE ERROR

The Concept of Response Error

In simple terms, a response error results from the assignment of a person to an incorrect category in a classification system. For example, if a person belongs to the education category, 2 years of college, a response error will result from the assignment of that person to one of the other education categories. Such errors affect census data in at least three ways: (1) The errors may introduce bias into the estimate of the population parameter; (2) the errors create variability in the classification of an element over repeated trials; and (3) the errors distort the relationships among variables. If only a single observation is available for each element, it is not possible to estimate directly the bias and variability associated with the classification process from these observations, although the bias may be estimated when data from an independent record source are available. For the 1970 census evaluation programs, estimates of response error for a particular population parameter were obtained by comparing, for identical persons, the responses obtained in the census and the responses obtained from another information source (e.g., the Current Population Survey, a reinterview, or an independent record source).

The effect of response errors on the quality of the data obtained for a particular category of a classification system is reflected by the level of net and gross error associated with that category. For a particular category, response errors produce misclassifications both into and out of the category. The net error associated with a category represents the difference between the number of persons erroneously included in the category and those erroneously omitted from the category, while the gross error represents the sum of those numbers, or the total number of response errors associated with the category. Thus, the net error reflects bias in the category while the gross error reflects the variability in the classification process.

Summary Measures of Response Error

In this analysis two measures of response error are used for the comparison of reinterview and census data for identical persons. One measure describes the amount of net error, while the other measure describes the amount of gross error. Appendix C presents the formulas for computing the measures. All estimates of response error have been multiplied by 100 so that the computed values can be discussed as percentages.

Measure of Net Error

The measure of net error or bias presented here is the *net difference rate*. The net difference rate for a particular category describes the difference between the census and reinterview proportions of persons in that category. A positive value of the net difference rate indicates that the proportion of persons in the category according to the census is greater than the corre-

sponding reinterview proportion, while a negative value indicates that the census proportion is less than the corresponding reinterview proportion. A difference between the census and reinterview estimates of the proportions of persons in a given category of a distribution, which is beyond that expected to result from sampling error, indicates bias in the census statistic when the second source of data is considered to be more accurate. For the characteristics included in this report, the reinterview data can be viewed as a more accurate source and the net difference rate may be interpreted as a measure of bias.

The text tables show the proportion of persons in the category according to the reinterview as well as the net difference rate. The sum of these values equals the proportion of persons in the category according to the census. For example, table B shows that, according to the reinterview, 4.0 percent of all persons are of Spanish origin or descent. The net difference rate shown for this category is -0.3 percentage points, indicating that in the census 3.7 (4.0 - 0.3) percent of all persons reported that they were of Spanish origin or descent.

A relative measure of bias also can be derived. This measure, referred to as the *net shift*, is obtained by dividing the net difference rate for the category by the best estimate of the proportion of persons in that category, i.e., the reinterview estimate. (The formula for computing this measure also is presented in appendix C.) The net shift is not shown in the tables since the net difference rate provides a more reliable estimate of bias (i.e., has a smaller sampling error).

Measure of Gross Error

The measure of gross error presented in this report is the *index of inconsistency*. There are several ways of interpreting the index of inconsistency, and although each interpretation uses different terms, each is closely related to the others. The interpretations are as follows:

- (1) If each of the two observations (the census and the reinterview, in this case) is regarded as an independent repetition of the same survey procedure, the index of inconsistency estimates the ratio of simple response variance to the total variance.¹

The total variance of responses for a population equals the average simple response variance for the persons in the population (i.e., the variance within persons) plus the sampling variance (i.e., the variance between persons). When identical responses are obtained from observation to observation, the simple response variance is zero and the value of the index of inconsistency is zero. When the responses are so variable that

¹The concept of response variance and this method of interpreting the index was originally developed by Hanson, Hurwitz, and Bershadt and is discussed fully in references 14 and 15. Interpretations (2) and (3) given in this section are extensions of that original model. (See reference 16.)

simple response variance equals total variance, the value of the index is 100. In this latter case, we have the absurd situation that, in obtaining a single response from N individuals, we have nothing more reliable than could be obtained if one took any individual in the population and interviewed him N times independently.

(2) Consider each person as having a population of responses which could be generated by independent repetition of the same survey procedures. If two responses are selected at random from this population, the index of inconsistency is the complement of the average intraclass correlation among the responses for each person (that is, $I = 1 - \delta$).

When $\delta = 1$, there is perfect positive correlation between the pairs of responses for each individual, and the index equals zero.

When $\delta = 0$, there is no correlation between the pairs of responses and the index equals 100. This interpretation of the index of inconsistency is analogous to that given in paragraph (1) above.

Alternately, consider that there are two populations of responses associated with each person, each being generated by an independent repetition of different procedures (e.g., an interview and reinterview). If one response is selected at random from each cluster, the index of inconsistency is approximately the complement of the average correlation between the responses obtained using different procedures for each person (i.e., $I = 1 - \rho_{GG'}$ where G denotes the general survey conditions associated with one procedure and G' denotes the general survey conditions associated with the other procedure). When $\rho_{GG'} = 1$, there is perfect positive correlation between the responses obtained for each procedure for each individual and the index equals zero. When $\rho_{GG'} = 0$, there is no correlation between the responses obtained for each procedure for each individual and the index equals 100. (Note: If the census estimate is biased, the correlation cannot be perfect and the index cannot be zero.) This interpretation is analogous to that given in paragraph (3) below.

(3) The index of inconsistency also may be interpreted as a standardized measure of response differences in that the observed number of response differences is shown relative to a standard, the standard being the expected number of response differences that would occur if the pairs of observations were formed by random association. Under this interpretation, the index measures inconsistency on a scale from zero (perfect consistency) to 100 (complete lack of consistency).²

²When concerned with two different procedures rather than a repeat of the same procedure, the theoretical upper bound for the index of inconsistency is 200. This maximum would occur when there are only two categories, the population is distributed between the two categories in equal proportions, and there is perfect negative correlation between the two observations for all persons. That is, persons classified as "in category" on the first observation are classified as "not in category" on the second observation, and vice versa.

For the data collected in the reinterview and the census, a maximum value of 100 for the index is assumed for scaling the consistency of responses. The nature of the data collected and the data-collection procedures used lead us to expect a positive correlation between observations.

Computed values of the index above 100 can occur when insufficient sample size is available for the estimation. To reduce the risk of showing unreliable indices, at least 10 sample observations were required in category between the two observations before the index was estimated.

When the second observation is not an attempt to repeat the original interview procedure but, for example, may represent an "improved" data source (e.g., in the present analysis the reinterview is considered to have generally better quality data than the census), the estimated index of inconsistency is an understatement of the ratio of the simple response variance of the original interview procedure to the total variance. The interpretation of the index in these terms as given in paragraph (1) is, therefore, questionable. The interpretations of the index given in the latter part of paragraph (2) and in paragraph (3) are appropriate, however, even when the second observation is not a repetition of the original interview procedure.

In view of the survey procedures used, the reinterview data here are expected to be generally more accurate than the census data. Thus, the interpretation given in paragraph (3) for the index of inconsistency is considered to be appropriate for this report.

Values of the index of inconsistency are computed and displayed for each response category in a distribution. For distributions with more than two categories (e.g., year of immigration), an index of inconsistency for the entire distribution, referred to as an *L-fold index of inconsistency*, is also displayed. (See reference 17.) This index is a weighted average of the individual indices computed for each category of the distribution. Conceptually, this measure is similar to the indices computed for individual categories. That is, it expresses the ratio of the observed number of differences in the entire distribution to the number of response differences that would be expected to result from a random association between the L -fold classifications on the first and second observations.

The index of inconsistency is only one of several measures that might be used to describe the total number of response differences (gross error) associated with data. Several alternate measures, such as "gross difference rate," "gross shift," and "percent identically reported," are discussed in references 4 through 12. From these measures, the index of inconsistency was chosen for use in this analysis because it provides a "standardized" measure of response differences. That is, it provides a basis for comparison of the consistency of responses (1) between various details of classification for the same characteristics, (2) between various methods of data collection, or (3) from one census to another.

It should be recognized that the level of the index is sensitive to the detail of the categories in which the data are collected. As the detail of the categories is decreased, the index cannot increase and will most likely decrease. Thus, the response variance associated with a particular distribution may be decreased to some extent by collapsing the categories of that distribution.

Sampling Variability

The measures of response error (index of inconsistency and net difference rate) presented in this report are based on a sample and are, therefore, subject to sampling variability. For this report, a 95-percent confidence interval has been constructed and is shown in the tables for each of the estimated response error measures. That is, the chances are about 95 out of 100 that the interval includes the average value of the estimates of the response error measures that could be obtained from all possible samples. These confidence intervals have been estimated from the sample results and provide a rough approximation on the extent

of sampling error associated with each estimate. Due to the assumptions made in estimating the sampling errors, these confidence intervals would be expected to understate the actual sampling variability for the estimated response errors. The formula used to compute the 95-percent confidence interval for each measure is provided in appendix C.

Use of Response Error Measures in Evaluating the Quality of Data

Of the two summary response error measures used here, the index of inconsistency probably provides the most information on the accuracy of the data collected while the net difference rate can be used to correct published census distributions. The index of inconsistency cannot be used to correct census distributions, but it provides insights into the reliability of the data presented in the published distributions (both simple distributions and cross tabulations). The summary measures estimated for this report, however, share a common deficiency in their applications to published data. Both measures describe only the effect of response errors which occurred in the field stage of enumeration. That is, they do not reflect the effects of subsequent clerical and computer processing operations nor other sources of error such as coverage error and enumerator variance. For published census data accumulated to major geographic areas, we would expect the response errors which occurred at the field stage of enumeration to be the dominant source of error affecting the data. Thus, these summary measures provide a rough approximation of the amount of inconsistency and bias associated with this type of published data.

Where a simple distribution of a characteristic is presented (e.g., persons by citizenship), both the net difference rate and the index of inconsistency provide information about the quality of the data collected. The net difference rate and its 95-percent confidence interval indicate if systematic errors in reporting have introduced biases into the distribution. That is, a bias in a particular category of a distribution is indicated when the 95-percent confidence interval of the net difference rate does not include zero as a possible value. As indicated earlier, the sign on the limits of the interval indicates the direction of the bias—positive values indicate the estimated census percent in class is greater than the corresponding reinterview percent in class while negative values indicate the opposite.

For example, in table W the net difference rate for the alien category is -2.2 percentage points with the range of the 95-percent confidence interval from -4.1 to -0.3 percentage points. Thus, the sample data provide evidence that this citizenship category is understated in the census and that the understatement may be as great as -4.1 percentage points or as small as -0.3 of a percentage point.

The indices of inconsistency associated with the simple distribution are important in evaluating the adequacy of the data-collection method for providing valid measures of the characteristics in the distribution. For the purpose of evaluating the adequacy of a data-collecting system, an index under 20 is considered small, those between 20 and 50 as moderate, and those over 50 as large. Large values of the index for a particular statistic or entire distribution are an indication that the data are unreliable and that (1) improvements are required in the method used to collect these data, (2) the concept itself may not be measurable by a household interview method, or (3) respondents are not able to provide accurate data to the detail desired.

An additional point needs to be considered when evaluating the level of the index of inconsistency: The index of inconsistency is *not* sensitive to the magnitude of a response error. For example, in a distribution with ordinal categories such as number of children ever born, both a difference in reporting of one child and a difference in reporting of five children are weighted equally in the index of inconsistency. Thus, for these types of distributions an examination of the detailed cross-classified data would be required to determine the magnitude of the response errors.

For one characteristic presented in a cross tabulation with another characteristic (e.g., Spanish origin or descent by age), erroneous classification into or out of the various categories of the distribution of either characteristic could introduce biases into the cross-tabulated data. For this study neither indices of inconsistency nor net difference rates are provided for cross-tabulated data. However, where indices of inconsistency are known separately for all or some of the characteristics in the cross tabulation of interest (e.g., for Spanish origin or descent and for age), they may serve as a guide in making inferences about the quality of the cross-tabulated data.

If the indices of inconsistency associated with each of the characteristics involved in the cross tabulation are large (i.e., over 50), it is likely that the cross-tabulated data are subject to serious biases. In that case, the user is advised to exercise extreme caution when using such data, particularly when inferences regarding the relationships between the characteristics are desired. Conversely, if the indices of inconsistency associated with each of the characteristics are small (i.e., under 20), the user may be somewhat confident that the cross-tabulated data are *not* seriously distorted.

There are no specific guidelines which are appropriate for areas between these extremes (i.e., moderate level indices as well as combinations of levels). For these situations, the user again should exercise caution when using the data and recognize that even a moderate degree of inconsistency in one or all of the characteristics can produce serious distortions in cross-tabulated data.

PART 2

EVALUATION OF RESPONSES TO NEW POPULATION QUESTIONS

In planning the response error evaluation studies for the 1970 census, high priority was assigned to evaluation of responses to questions included on the census questionnaire for the first time. The population characteristics enumerated for the first time in a decennial census included Spanish origin or descent, mother tongue, vocational training, activity, industry and occupation 5 years ago, and disability. Responses to the questions on activity and industry and occupation 5 years ago were evaluated in a study involving the use of data obtained from the Current Population Survey, and the results will be presented in a later report in the PHC(E) series. Responses to the disability question were evaluated in a large-scale postcensal sample survey conducted by the Bureau for the Social Security Administration, and those results also will appear in a later PHC(E) report. Responses to the other three questions were evaluated through the Content Reinterview Study, and the results of this evaluation are provided below.

Spanish Origin or Descent

Background and Methodology

The question on Spanish origin was asked of a 5-percent sample of households in the 1970 census. The respondents in these households were requested to answer the following questions for each household member:

13b. Is this person's origin or descent — (Fill one circle.)

- | | |
|------------------------------------|---|
| <input type="radio"/> Mexican | <input type="radio"/> Central or South American |
| <input type="radio"/> Puerto Rican | <input type="radio"/> Other Spanish |
| <input type="radio"/> Cuban | <input type="radio"/> No, none of these |

Enumerators were given guidelines on countries to be included as "Central or South American" and "Other Spanish," as well as the following guideline for determining origin or descent: "Origin or descent refers to the birthplace of the respondent, his parents or ancestors. Generally, people know their origin or descent even if they are fifth-generation Americans." This guideline did not precisely define origin or descent. The resultant responses to the Spanish origin question, therefore, may have been based on the respondent's self-perception of his Spanish origin or descent, not on specific criteria by which the respondent's actual origin or descent could be determined. Consequently, it is not reasonable to ascribe an error in reporting in many cases.

For example, if a person had Spanish ancestry on one side of the family several generations back, he may or may not perceive himself to be of Spanish origin when reporting on the census questionnaire. Some persons may have reported themselves as being of Spanish origin, while others may have reported they were not. Since the question may have been answered on the basis of the respondent's self-perception, the idea of a "correct"

or "incorrect" response does not seem to apply. On the other hand, in the reinterview more specific criteria were applied. The reinterview probed in detail to identify any Spanish origin, regardless of the person's self-perception. (See part 1 of appendix A for question sequence.)

Persons who did not report Spanish origin in the reinterview but had reported it in the census were visited for a third interview, referred to as reconciliation. (See part 1 of appendix B for questions used in reconciliation.) In the third interview the respondent was advised of his census response of Spanish ancestry and questioned to learn about the ancestry referred to in the census. A reconciliation interview was not conducted for persons who reported Spanish origin in the reinterview but did not report Spanish origin in the census. In those cases the reinterview report of Spanish origin was accepted because of the more detailed question sequence used. Reconciled data did not become a major factor in the analysis of data on Spanish origin because only about half of the 60 cases requiring reconciliation were reconciled and, of those, the reconciliation response agreed with the reinterview response in all but one case. Therefore, unreconciled data were used in the computation of indices for this characteristic. In both reinterview and reconciliation any Spanish ancestry detected, regardless of how many generations back or on which side of the family, was used to designate persons as being of Spanish origin. (The reinterview undoubtedly classified some persons as being of Spanish origin, for example, who might perceive themselves as being primarily of Germanic descent.) Under these circumstances the comparison of census and reinterview responses should be interpreted, not as estimating errors in the responses collected by the census procedures, but as differences in the identification of persons of Spanish origin under two *different* data collection procedures. Thus, the summary measures of response error can be interpreted as estimating error only if one assumes the reinterview criteria as the objective of the census question.

From the above discussion it is clear that this assumption is *not* entirely valid. Nevertheless, this assumption has been made for the analysis presented in this report since it provides a useful basis for understanding the ancestral backgrounds of persons who perceived and thus reported themselves to be of Spanish origin on the census questionnaire. It is also helpful in understanding some of the methodological problems associated with collecting data on Spanish origin with the type of question and concepts used in the decennial census.

Summary of Results

Summary of Response Differences

At the U.S. level, the estimated proportion of persons reporting Spanish origin or descent in the census was slightly less than the corresponding proportion in the reinterview, which used the more detailed set of questions. (See table A.) The proportion of persons reporting Spanish origin or descent in the census was

estimated from this sample to be between 0.6 and 0.1 percentage points lower than the estimated reinterview proportion in class of 4.0 percent, at the 95-percent confidence level.³ The level of response differences was judged to be moderate as the index of inconsistency was estimated, at the 95-percent confidence level, to be between 18 and 26. The sample data comparing the census and reinterview responses for Spanish origin or descent are summarized in table A.

Table A. Distribution of Census and Reinterview Responses for Spanish Origin or Descent

(Data shown as numbers of sample cases)

Reinterview classification	Census response		
	Total sample persons	Of Spanish origin or descent	Not of Spanish origin or descent
Total sample persons.....	9,259	340	8,919
Of Spanish origin or descent.....	369	280	89
Not of Spanish origin or descent.....	8,890	60	8,830

Source: Table 1, line 1.

Distribution of Response Differences by Selected Demographic Characteristics

Persons with a Spanish surname reported their origin much more consistently than persons without a Spanish surname (as measured by the index of inconsistency), foreign-born persons reported more consistently than native-born persons, Negroes reported much less consistently than whites or other races, and persons in the Southwest reported more consistently than persons in the rest of the country. No major differences in the consistency of reporting are evident when these data are analyzed by age, sex, relationship to head of household, and census enumeration method. (See table B.)

Evidence of understatement in the census, when compared with the more probing reinterview questions, was found for persons in several categories. (See table B.) The greatest absolute understatement was found for persons with a Spanish surname. There was also evidence of a slight understatement for persons with no Spanish surname. Other categories for which there was evidence of a slight understatement are native-born persons, son or daughter of head, persons age 0 through 19, whites, persons in Southwestern States, and persons in mail census areas. The only category with evidence of overstatement in the census is the Midwest. (Later analysis includes a discussion of the source of this overstatement.)

Response Differences

For persons reported as being of Spanish origin or descent in the reinterview.—Insight into methodological problems associated

³ It should be noted that the published census data show approximately 4.5 percent of persons as being of Spanish origin or descent. This difference is discussed later.

with the collection of Spanish-origin data is gained by examining the census reports for persons classified as "of Spanish origin or descent" in the reinterview by characteristics or circumstances which may be correlated with one's self-perception relative to origin and descent. (See table C.)

For the total sample, 76 percent of the persons who reported Spanish origin in the reinterview also reported Spanish origin in the census.⁴ However, persons with Spanish origin on both sides of the family almost always reported themselves to be of Spanish origin in the census (about 97 percent), while persons with Spanish origin on only one side of the family reported themselves to be of Spanish origin much less frequently (about 21 percent).

As Spanish ancestry becomes more removed, a person is less likely to report Spanish origin or descent in the census. Almost all (99 percent) of the persons who themselves came from a Spanish-speaking country reported Spanish origin in the census. The proportion reporting Spanish origin was about five-sixths (83 percent) for persons whose parent(s) came from a Spanish-speaking country, about three-fourths (73 percent) for persons whose grandparent(s) came from a Spanish-speaking country, less than one-half (44 percent) for persons whose great grandparent(s) came from a Spanish-speaking country, and almost none (6 percent) for persons whose Spanish ancestry is further removed than great grandparent(s).

Differences in reporting Spanish origin by the country from which the Spanish ancestry originated also were observed. The majority (89 percent) of persons of Cuban, Mexican, Puerto Rican, or Central or South American origin reported Spanish origin in the census. Only 31 percent of the persons with Spanish origin from some other Spanish-speaking country (mostly Spain) reported Spanish origin in the census. The reasons for this may be related to factors mentioned above. That is, most persons who have ancestors from Spain may have those ancestors on only one side of the family, and they may be quite far back in the person's family line. Both of these factors can contribute to a smaller percentage reporting Spanish origin in the census.

For persons reported as being not of Spanish origin or descent in the reinterview.—There were 60 sample persons in this study who were reported as being of Spanish origin or descent in the census but *not* of Spanish origin or descent in the reinterview. (These represent about 0.7 percent of all persons not of Spanish origin or descent according to the reinterview.) About 70 percent of these cases were persons from Southern or Midwestern States who apparently misinterpreted the "Central or South American" category in the census to mean the central or southern parts of the United States (a problem which is noted in other 1970 census publications). For example, in the reinterview sample there were families from Louisiana, Georgia, Kentucky, and Ohio who were reported erroneously as being of Central or South American origin or descent. In the reconciliation interview some of these families volunteered that they had simply misread the answer category of Central or South American as Central or Southern States. A small number of these cases were persons from non-Spanish-speaking foreign countries (e.g., Jamaica, Portugal, Haiti). For the remaining cases the reason for the reporting

⁴ The remaining 24 percent were persons who were reported as being *not* of Spanish origin in the census but were reported as being of Spanish origin in the reinterview. Most of these persons (about three-fourths) were classified as "of Spanish origin or descent" based on responses to item 37 and/or item 40 and did not require the additional probing provided in items 38 and 41 of the reinterview questionnaire. (See appendix A for questions used in the reinterview.)

Table B. Summary Measures of Response Differences for Reporting Spanish Origin or Descent, by Selected Demographic Characteristics

Characteristic	Index of inconsistency for reporting Spanish origin or descent	95-percent confidence interval for index of inconsistency	Percent in class in reinterview	Net difference rate	95-percent confidence interval for net difference rate
Total.....	22	18.6 to 25.7	4.0	-0.3	-0.6 to -0.1
Spanish surname.....	11	7.3 to 17.0	56.9	-3.5	-5.9 to -1.1
No Spanish surname.....	49	41.1 to 58.5	1.6	-0.2	-0.4 to -0.1
Native born.....	27	22.9 to 32.1	3.3	-0.4	-0.6 to -0.1
Foreign born.....	5	2.5 to 10.9	17.2	*0.2	-1.0 to 1.4
Age 0 to 19.....	25	20.0 to 31.9	5.1	-1.0	-1.5 to -0.4
Age 20 to 44.....	17	12.4 to 23.2	4.5	*0.0	-0.5 to 0.4
Age 45 or older.....	23	16.8 to 32.8	2.4	*0.1	-0.3 to 0.5
Male.....	21	16.8 to 26.8	4.2	*-0.3	-0.7 to 0.1
Female.....	22	17.8 to 28.2	3.8	*-0.4	-0.7 to 0.0
Son or daughter of head.....	25	19.6 to 32.2	4.8	-1.0	-1.6 to -0.5
Not son or daughter of head.....	20	16.2 to 24.9	3.6	*0.1	-0.3 to 0.4
White.....	20	16.6 to 24.0	4.0	-0.4	-0.7 to -0.1
Negro.....	88	59.7 to 100.0	1.4	*0.7	-0.5 to 1.9
Other races.....	11	4.2 to 28.4	17.9	*-3.0	-7.8 to 0.4
Southwest ¹	11	8.4 to 15.6	14.6	-2.0	-2.9 to -1.2
East ¹	28	21.4 to 37.5	2.8	*-0.1	-0.5 to 0.3
Midwest ¹	35	22.0 to 56.0	1.0	0.9	0.4 to 1.4
Balance of U.S. ¹	69	50.3 to 95.2	1.4	*-0.4	-1.0 to 0.1
Conventional census area.....	28	21.1 to 37.7	2.6	*-0.1	-0.5 to 0.3
Mail census area.....	20	16.3 to 24.2	4.7	-0.4	-0.8 to -0.1

*Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

¹Southwest: Arizona, California, Colorado, New Mexico, Texas. East: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Washington, D.C., Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida. Midwest: Illinois, Indiana, Ohio, Michigan. Balance of U.S.: All other states not mentioned above.

Source: Table 1.

difference could not be determined, but these cases may represent marking errors or reporting errors by proxy respondents in the census.

Nonresponses in the Census

The sample data given in table D show a high nonresponse rate in the census to the Spanish-origin question. Of the 10,815 matched persons in the reinterview sample, there were 1,182 nonresponses to the census origin or descent question (about 11 percent). Editing and allocation for these nonresponses had a trivial effect on the published number of persons of Spanish origin. A tabulation of these cases from the final census tape shows that about 0.9 percent were imputed as being of Spanish origin, 25.2 percent were imputed as being not of Spanish origin, and 67.2 percent remained in the "not reported" category. The effect of processing on 6.7 percent of the cases is unknown. Although the 0.9 percent imputed as being of Spanish origin is small, it should be noted that only 1.5 percent of the nonresponses were persons of Spanish origin according to the reinterview. The gross and net differences discussed earlier in this report reflect the comparison of census and reinterview responses before editing and allocation for NA's (not available). When the

results of editing and allocation discussed here are included in the comparison, the gross differences (index of inconsistency) and net differences (net difference rate) are virtually unchanged.

Comparison of Census Estimate from the Reinterview Sample with Published Census Data

The estimate of the proportion of persons reporting Spanish origin or descent in the census as calculated from the sample data is 3.7 percent. The proportion obtained from the published census data is 4.5 percent. This difference can be attributed to sampling error and to the following factors. First, a study of the matching problems between reinterview and census showed that the number of cases primarily representing households which moved between the census and reinterview dates was disproportionately high for Spanish households. Second, in some areas of the country where there is a great concentration of Spanish persons, the rate of failure to locate the census questionnaire for a specific address was disproportionately high. These matching problems contributed to the lower proportion of persons of Spanish origin in the matched households. A discussion of the effects of noninterview and matching problems on the response error measures is provided in part 5.

Table C. Distribution of Census Responses for Persons Reported as being of Spanish Origin or Descent in the Reinterview, by Selected Demographic Characteristics

Reinterview classification	Total in category in reinterview ¹	Spanish origin reported in census		95-percent confidence interval on percent
		Number	Percent	
Total of Spanish origin or descent.....	369	280	76	72 to 80
Spanish on both sides of family.....	266	258	97	95 to 99
Spanish on one side of family only.....	103	22	21	13 to 29
Father's side.....	44	9	20	8 to 32
Mother's side.....	59	13	22	11 to 33
Which ancestor from Spanish-speaking country:				
Sample person.....	77	76	99	97 to 99
Parent(s).....	90	75	83	75 to 91
Grandparent(s).....	89	65	73	64 to 82
Great grandparent(s).....	27	12	44	25 to 63
Further back.....	18	1	6	1 to 17
NA in reinterview.....	68	(X)	(X)	(X)
Mexican, Puerto Rican, Cuban, or Central or South American origin or descent.....	282	252	89	85 to 93
Other Spanish origin or descent.....	86	27	31	21 to 41
NA in reinterview.....	1	(X)	(X)	(X)

(X) Not applicable.

¹This total does not include census NA's (not available).

Table D. Distribution of Spanish Origin or Descent Responses in the Reinterview and in the Census, Before and After Processing

Reinterview classification	Census response							
	Total sample persons	Reported of Spanish origin or descent	Reported not of Spanish origin or descent	NA on Spanish origin or descent				
				Total NA	Imputed as being of Spanish origin or descent	Imputed as not being of Spanish origin or descent	Origin or descent not imputed; remained as not answered	Results of processing unknown
Total sample persons...	10,815	352	9,281	1,182	11	298	794	79
Of Spanish origin or descent.....	386	280	89	17	8	5	4	-
Not of Spanish origin or descent.....	9,970	60	8,830	1,080	2	245	757	76
NA on Spanish origin or descent.....	459	12	362	85	1	48	33	3

- Represents zero.

Mother Tongue

Background and Methodology

The question on mother tongue was asked of a 15-percent sample of households in the 1970 census. In the 1960 census a similar type of question was asked, but it was asked only of foreign-born persons in the 25-percent sample. The 1960 question was "What language was spoken in his home before he came to the United States?" In 1970 the respondents in the sample households were requested to answer the following question for each household member:

17. What language, other than English, was spoken in this person's home when he was a child? (*Fill one circle.*)

- | | |
|-------------------------------|--|
| <input type="radio"/> Spanish | <input type="radio"/> Other — <i>Specify</i> |
| <input type="radio"/> French | _____ |
| <input type="radio"/> German | <input type="radio"/> None, English only |

There were no additional instructions, definitions, or guidelines given to indicate how often and under what circumstances a foreign language should have been spoken in order for that language to be reported as having been spoken in the person's childhood home. Thus, the mother tongue question allows for a wide range of interpretation by respondents.

Because of this range of possible interpretations, the usual methods of evaluation and analysis of response errors, which involve comparison of initial responses with "correct" answers, were not applicable for the mother tongue question. Rather, the evaluation of the mother tongue question was designed to yield insights into the respondents' interpretations of the question.

In the reinterview, data were collected for each person having any foreign language usage in his childhood home, regardless of how frequent or infrequent the usage. Details about the foreign language usage were also obtained; i.e., who used it, how often, and under what circumstances. (See part 2 of appendix A for question sequence.) If a person reported foreign language usage in the census and not in the reinterview, another interview was conducted to reconcile the difference. If foreign language usage was reported in the reconciliation interview, details about the foreign language usage were obtained at that point. (See part 2 of appendix B for questions used in reconciliation.) The details obtained in the reinterview or reconciliation were used to stratify persons reporting foreign language usage by degree or intensity of usage into seven foreign language usage levels. In level 1 through level 6, the foreign language was spoken by the sample person himself; in level 7, the foreign language was not spoken by the sample person but was spoken by other family members, as shown in the classification system below.

Level 1—Foreign language spoken as primary language; English not spoken.

Level 2—Foreign language spoken as primary language; English also spoken.

Level 3—Foreign language spoken about *equally* with English.

Level 4—Foreign language spoken frequently in early childhood, with perhaps decreased usage in later childhood; spoken when relatives or visitors came, daily or several times a week; spoken daily or almost daily in the home; spoken under other similar *frequent* circumstances.

Level 5—Foreign language spoken when relatives or visitors came, less than several times a week; spoken to prevent child or others from understanding; spoken under other similar *occasional* circumstances.

Level 6—Foreign language spoken very seldom for slang, phrases, expressions, etc; spoken in conjunction with a language class taken in school; spoken under other similar *seldom* occurring circumstances.

Level 7—Foreign language was not spoken by the sample person, but was used by others in the home from time to time.

Analysis of the completeness of reporting in each stratum or level provides a better understanding of the relationship between the degrees of foreign language usage in the childhood home and the responses to the mother tongue question. By varying the definition of foreign mother tongue on the basis of these levels of foreign language usage, a series of comparisons was made between the reinterview and census responses to determine which reinterview definitions corresponded best to the census responses, based on the level and consistency of reporting. Persons with similar degrees of foreign language usage should tend to report in a consistent manner to the mother tongue question. That is, for the census data to have any meaning they should represent a subgroup of the population having similar degrees of foreign language usage in their childhood homes.

It was recognized that scaling the intensity or degree of foreign language usage is subject to errors resulting from (1) the variability between respondents and interviewers when describing a similar degree of language usage and (2) the coder variability in interpreting the write-in entries. These errors were minimized somewhat by choosing only a small number of categories and by making each category represent a relatively broad range of usage. The categories, while rough, should provide an adequate differentiation of subgroups of the population relative to intensity of foreign language usage.

Summary of Results

Summary of Response Errors for Alternative Definitions of Foreign Mother Tongue

Census respondents tended to apply a literal interpretation to the mother tongue question and to report any foreign language usage in their childhood homes, regardless of degree or intensity of usage. As might be expected, however, not all persons classified in each of the seven language usage levels on the basis of the reinterview data reported foreign language usage in the census. As the data in table E indicate, almost all (96.8 percent) of the persons in level 1 reported foreign language usage in the census, while only about one-half (52.2 percent) of the persons in level 7 reported foreign language usage. In addition, 0.3 percent of the persons reporting English usage only in the reinterview reported foreign language usage in the census.

On the basis of these data, the proportion of persons reporting foreign mother tongue in the census corresponds most closely to that obtained in the reinterview by considering levels 1 through 6 or 1 through 7 as defining foreign mother tongue. The proportion of persons reporting a foreign mother tongue in the census is overstated by about 2½ percentage points (where the reinterview proportion was 12½ percent) if one considers the language usage levels 1 through 6 as defining foreign mother tongue, while the proportion is understated by about 4½ percentage points (with a reinterview proportion of 19.6 percent) when levels 1 through 7 are used as the definition. (See table F.)

Table E. Comparison of Census and Reinterview Responses for Foreign Language Usage in Childhood Home, 1970 Census

(Data shown as numbers of sample persons reinterviewed and matched to census questionnaires)

Reinterview classification	Census response					
	Number			Percent distribution		
	Total sample persons	Foreign language spoken in childhood home	English only spoken in childhood home	Total sample persons	Foreign language spoken in childhood home	English only spoken in childhood home
Total sample persons.....	11,102	1,655	9,447	100.0	14.9	85.1
Foreign language spoken.....	2,170	1,627	543	100.0	75.0	25.0
Spoken by person himself.....	1,383	1,216	167	100.0	87.9	12.1
Foreign language only spoken (level 1).....	412	399	13	100.0	96.8	3.2
Foreign language predominant, English also spoken (level 2).....	445	410	35	100.0	92.1	7.9
Foreign language spoken equally with English (level 3).....	41	38	3	100.0	92.7	7.3
English predominant, foreign language spoken frequently ¹ (level 4).....	350	276	74	100.0	78.9	21.1
English predominant, foreign language spoken occasionally ² (level 5).....	95	72	23	100.0	75.8	24.2
English predominant, foreign language spoken seldom ³ (level 6).....	40	21	19	100.0	52.5	47.5
Not spoken by sample person but spoken by other family members (level 7).....	787	411	376	100.0	52.2	47.8
English only spoken.....	8,932	28	8,904	100.0	0.3	99.7

¹For example, spoken daily in the home.

²For example, spoken when relatives visited or to keep outsiders from understanding conversation.

³For example, used for slang, phrases, expressions.

Source: Table 2.

Table F. Summary Measures of Response Error for Reporting Mother Tongue, by Alternative Reinterview Definitions of Foreign Mother Tongue

Language usage levels included in definition of foreign mother tongue	Index of inconsistency for reporting mother tongue	95-percent confidence interval for index of inconsistency	Percent in class in reinterview	Net difference rate	95-percent confidence interval for net difference rate
1 through 3.....	38	35.1 to 40.2	8.1	6.8	6.3 to 7.4
1 through 4.....	26	24.0 to 28.1	11.2	3.7	3.2 to 4.1
1 through 5.....	23	21.6 to 25.4	12.1	2.8	2.4 to 3.3
1 through 6.....	23	21.3 to 25.0	12.5	2.5	2.0 to 2.9
1 through 7.....	18	16.5 to 19.5	19.6	-4.6	-5.1 to -4.2

Source: Table 2.

Analysis of the gross error under alternative definitions of foreign mother tongue provides further evidence that the question was interpreted literally by respondents. The highest correlation between the census and reinterview responses was observed under the least restrictive definition. The index of inconsistency for the least restrictive definition (levels 1 through 7) was about 18 percent and the inconsistency increased as the reinterview definition of persons having a foreign mother tongue became more restrictive. (See table F.)

An alternative definition of a foreign mother tongue which has been considered by subject-matter analysts would include only language usage in levels 1 through 4. In other words, a foreign language would be defined as a mother tongue if it was used frequently enough in the childhood home to be a "natural" language for the child. Under this definition, the level of reporting a foreign mother tongue in the census is overstated by about 3.7 percentage points, and the index of inconsistency is 26 percent. (See table F.) Thus, if it is desired to collect mother tongue data in subsequent censuses or surveys using the above definition, a number of changes will be required in data-collection procedures. These would include rewording of the question on mother tongue, as well as providing guidelines and instructions to respondents and enumerators so they can better understand how to answer the question. Under these conditions, one would expect the index of inconsistency and net difference rate to be somewhat smaller than indicated in table F for levels 1 through 4.

Distribution of Response Errors by Selected Demographic Characteristics

The response error measures for the mother tongue data were also estimated by nativity, age, sex, educational attainment, and residence of the sample person⁵, as well as by census enumeration method. Table G shows the estimates using levels 1 through 7 as the definition and table H shows the estimates using levels 1 through 4 as the definition.

Of these selected characteristics, nativity most clearly shows a differential in the consistency and level of reporting, with persons in the "foreign born" classification reporting with greater consistency and less bias than persons in the other two nativity classifications. For language usage levels 1 through 7, the index of inconsistency for "native of native parentage" is about 34 percent; for "native of foreign or mixed parentage" it is about 22 percent; and for "foreign born" it is only about 11 percent. The net difference rates for these classifications are -4.0 percentage points (with a reinterview proportion of 9.1 percent), -9.4 percentage points (with a reinterview proportion of 66.0 percent), and -3.5 percentage points (with a reinterview proportion of 78.5 percent), respectively. (See table G.)

For levels 1 through 4, the indices for "native of native parentage" and "native of foreign or mixed parentage" are somewhat higher than those for levels 1 through 7, while the index for "foreign born" is about the same. Further, the net difference rate for "foreign born" at levels 1 through 4 is not significantly different from zero at the 95-percent confidence level. This would indicate, as might be expected, that foreign-born persons as a group reported foreign mother tongue with a high degree of consistency and that, in general, the language was used quite frequently in their childhood homes. (See table H.)

⁵Response errors associated with these selected characteristics are not reflected in the data discussed here. For further discussion of these response errors, see part 5.

There appear to be no major differences in the response error measures when analyzed by the other selected characteristics or by census enumeration method. In the age and education categories, reporting patterns are indicated, although not all differences are significant at the 95-percent confidence level. The data suggest a pattern of increasing consistency and smaller bias with increasing age. For education an inverse relationship is suggested, with a tendency toward less consistency and greater bias at the higher levels of educational attainment. (See table G.)

Summary of Response Errors for Language Reported

The evaluation data also provide measures of the reporting accuracy for various foreign languages spoken in the childhood home. In the evaluation study, the language response were classified into one of eight language classifications; i.e., English, French, German, Italian, Polish, Spanish, Yiddish, and all other. In comparing the response error measures for the two definitions, it was found that, generally, the index of inconsistency is higher for the more restrictive definition, i.e., levels 1 through 4. The average index of inconsistency for the 1- through 4-level definition is 26 percent, which is in the moderate range, while the average index for the 1- through 7-level definition is in the low range at 18 percent. (See table I.)

Also, from the more restrictive to the less restrictive definition, there is, as expected, an increase in the percent in class in the foreign language categories. One exception to this is the Spanish language classification for which there was little or no change in the index of inconsistency between the two definitions, with a relatively modest increase in the percent in class. (See table I.) This is an indication that the language usage levels for persons reporting Spanish language are predominantly in levels 1 through 4, since the consistency of reporting Spanish language usage is not affected measurably by changing the definition of foreign mother tongue.⁶

For those persons who indicated in both census and reinterview that a foreign language was spoken in their childhood homes, the foreign language reports were very consistent and relatively free of bias. As table J shows, the average index of inconsistency for the foreign language classification is approximately 3 percent, and there is no evidence of bias as no language classification has a net difference rate significantly different from zero at the 95-percent confidence level. The major source of error, then, is not in reporting the specific foreign language spoken, which is relatively error free, but in reporting that a foreign language was spoken in the childhood home.

Comparison of Census Estimate from the Reinterview Sample with Published Census Data

The proportions of persons in each of the language categories in the census (i.e., English only, French, German, Italian, Polish, Spanish, Yiddish, and all other) as estimated from the sample data, are very close to the published census proportions, with the exception of the Spanish category. This category has an estimated proportion significantly lower than that published in

⁶A word of caution is necessary for analysis of these data. A study of the matching problems between reinterview and census shows the mismatches were disproportionately high for Spanish households. This was found both for households which moved between the census and reinterview field phases and for households for which the match to a census questionnaire was not completed. The response error measures discussed here would be biased to the extent that the response error distribution among these mismatched cases differs from the distribution among matched cases.

Table G. Summary Measures of Response Error for Reporting Mother Tongue Using Language Usage Levels 1 through 7 as Reinterview Definition of Foreign Mother Tongue, by Selected Demographic Characteristics

Characteristic	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class in reinterview	Net difference rate	95-percent confidence interval for net difference rate
NATIVITY					
Native of native parentage.....	34	30.6 to 37.3	9.1	-4.0	-4.4 to -3.6
Native of foreign or mixed parentage.....	21	18.3 to 25.2	66.0	-9.4	-11.1 to -7.6
Foreign born.....	11	7.1 to 16.6	78.5	-3.5	-5.2 to -1.8
AGE					
0 to 14 years.....	23	18.3 to 27.8	7.7	-2.3	-2.9 to -1.8
15 to 34 years.....	25	21.1 to 28.7	16.1	-5.5	-6.4 to -4.6
35 to 64 years.....	17	14.9 to 19.2	29.2	-6.0	-6.8 to -5.1
65 years or older.....	14	10.6 to 17.8	31.3	-4.7	-6.2 to -3.2
SEX					
Male.....	17	14.8 to 18.9	19.6	-4.3	-4.9 to -3.7
Female.....	19	16.9 to 21.2	19.5	-4.9	-5.5 to -4.3
EDUCATION					
Elementary.....	13	10.1 to 15.8	35.2	-4.7	-6.0 to -3.5
High school.....	18	15.1 to 20.8	27.1	-6.0	-7.1 to -4.9
College.....	20	15.5 to 25.2	26.2	-6.0	-7.8 to -4.3
RESIDENCE					
U.S. inside SMSA.....	17	15.0 to 18.4	23.6	-5.0	-5.6 to -4.4
U.S. outside SMSA.....	23	19.7 to 26.3	13.3	-4.1	-4.7 to -3.4
North Central region.....	21	18.5 to 24.3	21.5	-6.0	-6.9 to -5.1
Northeast region.....	15	12.9 to 17.8	27.6	-5.0	-6.0 to -4.1
South region.....	19	15.7 to 24.0	8.8	-2.2	-2.8 to -1.6
West region.....	19	15.7 to 22.7	23.0	-5.9	-7.0 to -4.7
CENSUS ENUMERATION METHOD ¹					
Apparently mail return.....	18	15.6 to 20.0	24.2	-5.6	-6.3 to -4.9
Apparently nonmail return or conventional.....	19	16.5 to 20.7	16.6	-4.0	-4.6 to -3.5

¹Census questionnaires were classed as "mail return" if they were in a mail area and the respondent who signed the questionnaire was a household member. Otherwise, they were classed as "nonmail return" or "conventional" area questionnaires.

Source: Table 2.

Table H. Summary Measures of Response Error for Reporting Mother Tongue Using Language Usage Levels 1 through 4 as Reinterview Definition of Foreign Mother Tongue, by Selected Demographic Characteristics

Characteristic	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class in reinterview	Net difference rate	95-percent confidence interval for net difference rate
NATIVITY					
Native of native parentage.....	52	46.7 to 57.7	2.7	2.3	1.9 to 2.7
Native of foreign or mixed parentage.....	39	35.3 to 43.8	42.4	14.2	11.8 to 16.7
Foreign born.....	14	9.8 to 20.2	74.7	*0.4	-1.6 to 2.3
AGE					
0 to 14 years.....	29	23.5 to 36.1	4.1	1.3	0.7 to 1.8
15 to 34 years.....	35	30.1 to 40.9	7.3	3.4	2.5 to 4.3
35 to 64 years.....	26	23.7 to 29.5	17.2	6.1	5.2 to 7.1
65 years or older.....	18	14.5 to 23.3	23.6	3.0	1.4 to 4.7
SEX					
Male.....	27	23.9 to 29.8	11.3	4.0	3.3 to 4.7
Female.....	25	22.7 to 28.4	11.2	3.4	2.8 to 4.1
EDUCATION					
Elementary.....	17	14.3 to 21.2	27.0	3.5	2.0 to 4.9
High school.....	28	24.3 to 32.3	15.1	6.0	4.8 to 7.2
College.....	36	30.0 to 44.2	12.5	7.7	5.6 to 9.8
RESIDENCE					
U.S. inside SMSA.....	25	22.7 to 27.3	13.9	4.4	3.8 to 5.1
U.S. outside SMSA.....	31	26.5 to 35.4	6.9	2.4	1.8 to 3.1
North Central region.....	31	27.2 to 35.1	11.4	4.2	3.3 to 5.1
Northeast region.....	23	20.1 to 26.7	17.4	5.2	4.1 to 6.2
South region.....	25	19.9 to 30.6	5.0	1.6	1.0 to 2.2
West region.....	27	22.7 to 32.1	12.9	4.2	3.0 to 5.4
CENSUS ENUMERATION METHOD¹					
Apparently mail return.....	26	23.3 to 29.3	13.8	4.9	4.0 to 5.7
Apparently nonmail return or conventional.....	26	23.4 to 29.0	9.6	2.9	2.4 to 3.5

*Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

¹Census questionnaires were classed as "mail return" if they were in a mail area and the respondent who signed the questionnaire was a household member. Otherwise, they were classed as "nonmail return" or "conventional" area questionnaires.

Source: Table 2.

Table I. Summary Measures of Response Error for Reporting Language, by Alternative Definitions of Foreign Mother Tongue

Foreign mother-tongue definition and language reported	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class in reinterview	Net difference rate	95-percent confidence interval for net difference rate
LEVELS 1 THROUGH 7					
English only.....	18	16.5 to 19.4	80.3	4.6	4.2 to 5.1
French.....	22	16.8 to 27.8	1.5	-0.3	-0.4 to -0.2
German.....	24	21.3 to 28.1	4.7	-1.6	-1.8 to -1.3
Italian.....	13	9.9 to 16.3	2.6	-0.6	-0.7 to -0.4
Polish.....	14	10.2 to 18.2	1.7	-0.3	-0.4 to -0.1
Spanish.....	11	8.3 to 13.8	2.8	-0.4	-0.6 to -0.3
Yiddish.....	22	16.0 to 29.1	1.1	-0.3	-0.4 to -0.1
All other.....	18	15.8 to 21.3	5.3	-1.3	-1.6 to -1.1
L-fold index.....	18	16.5 to 19.3	(X)	(X)	(X)
LEVELS 1 THROUGH 4					
English only.....	26	24.0 to 28.1	88.8	-3.7	-4.1 to -3.2
French.....	37	29.6 to 46.9	0.7	0.5	0.4 to 0.7
German.....	38	32.7 to 43.1	2.0	1.2	1.0 to 1.5
Italian.....	23	18.3 to 28.2	1.5	0.5	0.4 to 0.7
Polish.....	21	12.0 to 27.1	1.1	0.7	0.1 to 0.5
Spanish.....	13	9.8 to 16.3	2.2	0.2	0.1 to 0.3
Yiddish.....	30	22.4 to 39.8	0.7	*0.1	0.0 to 0.3
All other.....	23	20.1 to 27.0	3.3	0.7	0.5 to 1.0
L-fold index.....	26	23.7 to 27.6	(X)	(X)	(X)

(X) Not applicable.

*Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

Source: Tables 3 and 4.

Table J. Summary Measures of Response Error for Reporting Foreign Language, for Persons Reporting Foreign Language in both Census and Reinterview

(Language-usage levels 1 through 7 used as definition of foreign mother tongue)

Language reported	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class in reinterview	Net difference rate	95-percent confidence interval for net difference rate
French.....	3	1.2 to 6.0	7.1	*0.4	0.0 to 0.8
German.....	4	2.5 to 5.9	21.3	*-0.3	-0.9 to 0.3
Italian.....	1	0.1 to 1.9	13.6	*0.0	-0.2 to 0.2
Polish.....	6	3.4 to 9.1	9.7	*0.1	-0.4 to 0.6
Spanish.....	1	0.2 to 2.1	15.8	*0.1	-0.2 to 0.3
Yiddish.....	8	4.5 to 13.6	5.4	*-0.1	-0.5 to 0.4
All other.....	5	3.6 to 7.2	27.2	*-0.2	-0.9 to 0.5
L-fold index.....	3	2.6 to 4.7	(X)	(X)	(X)

(X) Not applicable.

*Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

Source: Table 3.

the census (2.4 percent vs. 4.0 percent). In addition to sampling error this difference can be attributed to the factors cited in the section on Spanish origin under the same heading. A discussion of the effects of noninterview and matching problems on the response error measures is provided in part 5.

Index of Inconsistency Using Unreconciled Responses

The measures discussed up to this point were computed using reconciled data, which introduce a downward bias in the index of inconsistency as an estimate of the ratio of simple response variance to total variance. When the index is computed using unreconciled data, it more closely approximates this ratio, although it is still biased. Response error measures computed using unreconciled data are shown in table K for reporting foreign mother tongue and for language reported. (Language usage levels 1 through 7 were used as the definition of foreign mother tongue.)

Table K. Index of Inconsistency for Reporting Foreign Mother Tongue and Language, Using Unreconciled Responses

(Language usage levels 1 through 7 used as definition of foreign mother tongue)

Item	Index of inconsistency for unreconciled data	95-percent confidence interval for index of inconsistency
Reporting foreign mother tongue.....	24	22.3 to 25.9
Language reported:		
English only.....	24	22.2 to 25.7
French.....	31	24.7 to 38.0
German.....	31	27.5 to 35.2
Italian.....	16	12.9 to 20.3
Polish.....	16	12.4 to 21.2
Spanish.....	17	13.5 to 20.4
Yiddish.....	26	19.7 to 34.0
All other.....	23	20.1 to 26.3
L-fold index.....	23	21.9 to 25.2

Vocational Training

Background and Methodology

In the 1970 census, respondents 14 years old and older enumerated on the 5-percent questionnaire were asked to answer a two-part question relating to the completion of a vocational training program and the main field of vocational training. (See below.) The only additional instructions provided the respondents and enumerators for the question on the completion of a vocational training program—other than the examples cited in the body of the question—were the following: "Count only programs that he finished; count Job Corps training; do not count courses which are not part of an organized program of study; and do not count training he got on the job, in a company school, in college after the second year, by correspondence, or in basic training in the Armed Forces."

Under these circumstances, a wide range of training experiences may have been reported as vocational, including those that are without question vocational as well as those that are more marginal in nature. Thus, the "correct" answer could not be obtained in the reinterview by using a specific definition of what comprised a vocational training program, since such a definition did not exist.

27a. Has this person ever completed a vocational training program? For example, in high school; as apprentice; in school of business, nursing, or trades; technical institute; or Armed Forces schools.

☐ Yes ☐ No — Skip to 28

b. What was his main field of vocational training? (Fill one circle.)

☐ Business, office work

☐ Nursing, other health fields

☐ Trades and crafts (mechanic, electrician, beautician, etc.)

☐ Engineering or science technician; draftsman

☐ Agriculture or home economics

☐ Other field — Specify _____

Rather, the reinterview data were used to determine the characteristics of the completed training experiences which were reported as vocational, as well as determining how consistently persons having completed similar types of training either reported such training as vocational in the census or did not report the training as vocational.

In the reinterview each person 14 years old and older was questioned in detail about any training that *might be* considered vocational; if a potential training program was detected, a series of questions was asked for the purpose of obtaining data on the nature of the program. (See part 3 of appendix A for question sequence.) These data included the field of training, where or how the training was received, whether the training program was completed, year the training was received, usefulness of the training in a civilian job, and weeks and hours spent in the training program. The data also provided a basis for identifying those persons having training experiences which were clearly not to be reported as vocational training according to the respondent and enumerator instructions, as well as those having no training experiences. A reconciliation interview was conducted when a person indicated on his census questionnaire that he had completed a vocational training program but indicated in the reinterview that he had never attended a vocational training program. (See part 3 of appendix B for questions used in the reconciliation.) No additional interview was conducted when a person indicated on his census questionnaire that he did not complete a vocational training program but indicated in the reinterview that he had completed such a program. As detailed information about the program was collected in the reinterview, there seemed to be little additional information to be learned through a third interview.

The question on the main field of training (question 27b above) represents one of the first attempts to collect data of this type using summary self-coding classifications rather than detailed write-in entries to be coded by clerks. To evaluate the data collected by this procedure, detailed descriptions of the main field of training were collected in the reinterview and coded

independently to the summary categories. Where differences existed between the census and the reinterview field-of-training category for an individual, a subsequent interview was conducted to reconcile the differences. (See part 3 of appendix B, questions 1-4.)

Summary of Results

The vocational training question was subject to a broad range of interpretations by respondents which resulted in a substantial number of persons in the study being inconsistently categorized between the census and the reinterview relative to this question. Based on the responses to the battery of reinterview questions, table L shows the census responses for vocational training cross-classified by the status of the individual relative to completing a vocational training program. The off-diagonal cases, 556 and 524, represent those which are inconsistently categorized.

Table L. Distribution of Census and Reinterview Responses for Vocational Training

(Data shown as numbers of sample cases)

Reinterview classification	Census response		
	Total sample persons	Completed a vocational training program	Did not complete a vocational training program
Total sample persons...	7,567	1,383	6,184
Completed a vocational training program ¹	1,415	859	556
Did not complete a vocational training program ² ..	6,152	524	5,628

¹Includes persons reporting completion of any type of vocational training program other than those specifically excluded by the census instructions.

²Includes persons reporting completion of training which was specifically not to be reported as vocational according to the census instructions, as well as persons reporting never having attended any type of vocational training program.

Source: Table 5.

Reporting Errors in the Census

Vocational training programs erroneously not reported.—Of the persons identified in the reinterview as having completed a training program which might qualify as vocational, only about 61 percent (i.e., 859 out of 1,415) reported completing a vocational training program on the census questionnaire. (See table M.) The proportion of the completed training programs classified as vocational in the reinterview which were reported as completed in the census varied slightly depending on (1) the usefulness of the training program (i.e., currently being used in a job, previously used in a job, or never used), (2) the man-hours spent in the training program, and (3) where the training was received (i.e., trade or technical school, high school, Armed Forces, etc.). (See table M.) In general, the types of programs most completely reported included those that currently were

being used in the job, those that involved 2,000 or more hours of training, and those that were taken in a trade or technical school. However, the proportion of such programs reported as completed in the census was still quite low. The proportions of such programs correctly reported as having been completed were only 66, 74 and 67 percent, respectively.

Training erroneously reported as vocational.—Offsetting the errors discussed in the previous section, a large number of persons erroneously reported completing a vocational training program in the census. (See table N.) The data show that about 38 percent of the persons who reported completing a vocational training program on the census questionnaire had not done so, by the census definition. About 29 percent reported training experiences which were clearly not to be reported as vocational according to the census instructions (i.e., training started but never completed, training which was not part of an organized program of study, on-the-job training, training received in college after the second year, training in a company school, and training received through a correspondence course), and an additional 9 percent indicated in the reinterview that they had never received any type of training that might be considered as vocational.⁷

Consistency of Reporting Completion of Vocational Training

The reinterview data in table M provide a basis for creating alternative reinterview definitions of vocational training, and the consistency of the census responses with respect to each of the definitions may be evaluated by using the index of inconsistency. Several alternative definitions which have been considered are described in table O. In all cases these alternatives yield indices of inconsistency of about 47 percent or greater.⁸ Indices of this magnitude indicate that it is likely that cross tabulation of the vocational training data with other characteristics will be seriously distorted; therefore, comparisons between the subgroups of persons reporting that they completed a vocational training program and those reporting that they did not complete a vocational training program (e.g., in terms of median earnings), which are based on census data, will also be distorted.

Bias in the Census Data on Completion of Vocational Training

The proportion of persons reporting completion of a vocational training program in the census corresponds most closely with the reinterview definition which *includes* any training that might be considered as vocational, regardless of where, how, or when received or the length of the training program, but *excludes* training not to be reported as vocational according to the census instructions. As shown in line 1 of table O, the proportion of persons 14 years and older classified as "completing a vocational training program" in the reinterview is 18.7 percent while the corresponding proportion based on the census responses is 18.3 percent—a difference of only -0.4 of a percentage point. The 95-percent confidence interval for the estimated net difference

⁷These persons answered "no" to questions 44, 45, and 46 on the reinterview questionnaire as well as indicating in the reconciliation that they never attended a vocational training program. (See appendixes A and B.)

⁸An alternative definition (suggested by the large number of persons erroneously reporting completion of a vocational training program), which might yield a lower index of inconsistency, would include as vocational training those activities excluded by the instructions to respondents and enumerators; that is, it would include those programs started but not completed, on-the-job training, training in a company school, etc. That alternative cannot be evaluated with these data, as it is unknown how many persons had these types of training but did not report them on the census questionnaire because of the instructions.

Table M. Evaluation of Census Report, by Type of Vocational Training Program Completed, 1970 Census

(Data shown as sample counts of persons 14 years and older who, according to the reinterview, had completed any training program which might be considered vocational other than those which were not to be reported according to the census instructions)

Category	Total sample persons	Reported as completed in census		95-percent confidence interval for percent
		Number	Percent	
Total sample persons classified as "completing a vocational training program" on the basis of the reinterview.....	1,415	859	61	58.4 to 63.6
FIELD OF TRAINING				
Business.....	515	305	59	54.6 to 63.4
Nursing.....	183	114	62	55.0 to 69.0
Trades.....	551	339	62	57.8 to 66.2
Engineer.....	68	42	62	50.2 to 73.8
Agriculture.....	43	25	58	43.0 to 73.0
Other.....	15	11	73	50.2 to 95.8
Field not reported.....	37	(X)	(X)	(X)
YEAR PROGRAM COMPLETED				
1969 or later.....	89	52	58	47.6 to 68.4
1965-1968.....	252	139	55	48.8 to 61.2
1960-1964.....	170	111	65	57.8 to 72.2
1950-1959.....	295	185	63	57.4 to 68.6
1940-1949.....	307	198	64	58.6 to 69.4
1939 or earlier.....	233	141	60	53.6 to 66.4
Year not reported.....	69	(X)	(X)	(X)
WHERE OR HOW TRAINING RECEIVED				
Trade or technical school.....	636	425	67	63.2 to 70.8
Other school or not in school.....	682	372	54	50.2 to 57.8
High school.....	249	114	46	39.6 to 52.4
College.....	147	79	54	45.8 to 62.2
Other school.....	127	81	64	55.6 to 72.4
Not in school ¹	159	98	62	54.2 to 69.8
Where or how received not reported.....	97	(X)	(X)	(X)
MAN-HOURS IN PROGRAM				
Less than 100 man-hours.....	188	80	42	34.8 to 49.2
Under 25 man-hours.....	40	12	30	15.6 to 44.4
25-99 man-hours.....	148	68	46	37.8 to 54.2
100 or more man-hours.....	1,119	715	64	61.2 to 66.8
100-249 man-hours.....	176	86	49	41.6 to 56.4
250-499 man-hours.....	137	73	53	44.6 to 61.4
500-999 man-hours.....	209	134	64	57.4 to 70.6
1,000-1,999 man-hours.....	312	210	67	61.8 to 72.2
2,000 man-hours or more.....	285	212	74	69.2 to 79.6
Man-hours not reported.....	108	(X)	(X)	(X)
USEFULNESS OF TRAINING ²				
Used in current job.....	618	410	66	62.2 to 69.8
Previously used or never used in job.....	779	438	56	52.4 to 59.6
Previously used.....	504	295	58	53.6 to 62.4
Never used, training sufficient to qualify for civilian job in that field.....	223	121	54	47.4 to 60.6
Never used, training not sufficient to qualify for civilian job in that field.....	52	22	42	28.4 to 55.6
Usefulness not reported.....	18	(X)	(X)	(X)

(X) Not applicable.

¹Includes training received through the Job Corps, or an apprenticeship, and military training which could be used in a civilian job.

²Respondent's assessment.

Table N. Possible Reasons for Incorrectly Reporting Completion of a Vocational Training Program, 1970 Census

(Data shown as sample counts of persons 14 years and older who reported completing a vocational training program on their census questionnaire)

Possible reason for erroneous report	Persons reporting completion of vocational training program in census		
	Number	Percent	95-percent confidence interval for percent
Total sample persons reporting vocational training in census.....	1,383	100	(X)
Erroneously reported completing a vocational training program ¹	524	38	35.4 to 40.6
Attended, never completed.....	138	10	8.4 to 11.6
Not a formal program.....	17	1	0.4 to 1.6
On-the-job training.....	54	4	3.0 to 5.0
Correspondence course.....	24	2	1.2 to 2.8
Received in Armed Forces ²	14	1	0.4 to 1.6
Received in company school.....	87	6	4.6 to 7.4
Academic training.....	63	5	3.8 to 6.2
Reason unknown ³	127	9	7.4 to 10.6

(X) Not applicable.

¹Based on the instructions for exclusion given to respondents and enumerators.

²Includes military training received in basic training, officer candidate school, artillery school etc., and other military training which has no civilian applicability.

³These persons indicated they had completed a vocational training program on the census questionnaire but indicated in the reinterview and reconciliation that they never attended a training program which might be considered vocational. These may represent marking errors or erroneous reports by proxy respondents.

Table O. Summary Measures of Response Error for Reporting Completion of a Vocational Training Program, by Various Reinterview Definition of Vocational Training

Reinterview definition of vocational training based on—	Index of inconsistency for reporting vocational training	95-percent confidence interval for index of inconsistency	Percent completing a vocational training program ¹	Net difference rate	95-percent confidence interval for net difference rate
No program qualifications except those indicated in the census instructions ²	47	44.8 to 50.1	18.7	*-0.4	-1.3 to 0.5
Man-hours in program ³	49	46.6 to 52.4	15.0	2.7	1.8 to 3.5
Usefulness of program ⁴	52	49.1 to 55.0	14.9	3.3	2.4 to 4.2
Where or how program received ⁵	62	58.2 to 65.1	8.5	9.5	8.6 to 10.4

*Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

¹In the reinterview based on the alternative definition of vocational training.

²Under this definition, persons have been classified in the reinterview as "completing a vocational program" if they completed any training program which might be considered vocational other than those not to be reported according to the census instructions.

³Under this definition, persons have been classified as "completing a vocational training program" if they completed any training program which might be considered vocational other than those specifically excluded by the census instructions and the program consisted of 100 or more man-hours of training.

⁴Under this definition, persons have been classified as "completing a vocational training program" if they completed a training program which might be considered as vocational other than those specifically excluded by the census instructions and they indicated current or previous use of the training in a civilian job or business.

⁵Under this definition, persons have been classified as "completing a vocational training program" only if they completed such a program in a trade or technical school.

Source: Table 6.

rate is -1.3 to 0.5 percentage points. The proportion of persons reporting completion of a vocational training program in the census is from about 3 to 9 percentage points greater than the corresponding proportions obtained under the other reinterview definitions of vocational training.

The data given in the 1970 census subject report on vocational training (PC(2)-5C) indicate that about 24 percent of all persons 16 years and older completed a vocational training program. The difference between this percent and the estimated percent cited above based on census data (i.e., 18.3 percent) is substantial and cannot be entirely attributed to the sampling error in the census estimate obtained from the reinterview study, or to the fact that the census estimate from the reinterview study includes all persons 14 years and older. The data obtained from this study indicate that a very small proportion of persons in the age category 14 to 17 years old reported completing a vocational training program in the census. Thus, the census estimate from the reinterview study for persons 16 years and older would only be slightly higher than the estimate shown for persons 14 years and older. Data obtained from the reinterview study indicate that the difference between the reinterview sample results and published census data may be due to disproportionate allocation of vocational training for persons leaving the item blank on the census questionnaire.

Distribution of Response Errors by Selected Demographic Characteristics

A detailed review of response accuracy was made by age, sex, race, years of school completed, labor force status, major occupation division, and earnings in 1969. (See table P.) That review shows that the census and reinterview responses are highly inconsistent, regardless of the nature of the other characteristics. The majority of the indices of inconsistency are in the 40- to 60-percent range.⁹ There is evidence of bias in reporting completion of a vocational training program when the response errors are analyzed by the sex of the respondent. Males overreported completion of a vocational training program while females underreported. The net difference rate is 1.9 percentage points for males 14 years and older, and the 95-percent confidence interval indicates that the difference between the census and reinterview proportion is at least 0.5 of a percentage point and may be as great as 3.2 percentage points. The net difference rate is -2.3 percentage points for females 14 years and older, and the 95-percent confidence interval for this estimate indicates that the difference is at least -1.2 percentage points and may be as great as -3.4 percentage points.

The net difference rates associated with the data when sex is cross-classified with employment status, major occupation division, and earnings in 1969 indicate that the addition of these characteristics does not significantly alter the reporting patterns associated with sex alone. For example, males 14 to 64 years old in the civilian labor force overreported completion of a vocational training program while females 14 to 64 years old in the civilian labor force underreported completion of a vocational training program.

⁹ It should be noted that the selected characteristics used for this analysis are also subject to response error. However, such errors were not taken into account. As a result the estimated response error measures for each of these characteristics reflect only errors in reporting completion of a vocational training program. The measures do *not* specifically indicate the accuracy of the published data on vocational training when cross-classified by these characteristics, although the magnitude of the indices indicate that the cross-tabulations of the vocational training data by these characteristics may be seriously distorted. (See part 1.)

Consistency of Reporting Main Field of Training

The consistency of reporting the main field of vocational training is substantially better than for reporting completion of a vocational training program. For persons reporting completion of a vocational training program in both the census and reinterview, the census reports for "main field of training" are quite consistent, on the average, with those obtained in the reinterview. The L-fold index of inconsistency for "main field of training" was about 9 percent, with the 95-percent confidence interval indicating a range between 7 percent and 12 percent. (See table Q.) The indices of inconsistency associated with the largest categories—business, nursing, and trades—are on the same order of magnitude, while those associated with the remaining smaller categories may be somewhat higher. There is no evidence of bias in any of the categories, as the 95-percent confidence intervals associated with each of the estimated net difference rates include zero as a possible value. The widths of the 95-percent confidence intervals indicate that if bias does exist in the business, nursing, or trades categories, it is relatively small. If a bias exists in the remaining categories, it may be more serious.

While the conclusions regarding the quality of these data are limited by the sample size, the overall consistency between the self-coded responses and those derived from the reinterview would indicate that the self-coding process may be an adequate means for collecting other types of similar data (e.g., major occupation), although further testing would be required to obtain conclusive evidence of its adequacy.

Accuracy of Published Census Data for Main Field of Training

The published census data for field of vocational training are subject not only to errors in reporting the main field of a vocational training program but also to errors in reporting completion of the vocational training program. When the field-of-training data are analyzed for the joint effect of errors in reporting completion of vocational training and errors in reporting field of training, these data are found to have substantial numbers of response errors. Evidence of this is provided by the L-fold index of inconsistency, which is about 46 percent when both sources of error are considered, and by the indices for the individual categories which range from 38 percent to 65 percent. (See table R.) Considering both sources of error, the proportion of persons completing a vocational training program in the business category is moderately understated. About 6.8 percent of all persons 14 years and older reported completing a vocational training program in the business field in the reinterview as compared to 6.1 percent in the census. The 95-percent confidence interval indicates that the difference is at least -0.2 of a percentage point and may be as great as -1.3 percentage points.

Index of Inconsistency Using Unreconciled Responses

The measures discussed up to this point were computed using reconciled data, which introduce a downward bias in the index of inconsistency as an estimate of the ratio of simple response variance to total variance. When the index is computed using unreconciled data, it more closely approximates this ratio, although it is still biased. Table S provides estimates of the ratio of simple response variance to total population variance (i.e., the index of inconsistency) for "completion of vocational training program" and "main field of training" based on unreconciled data.

Table P. Summary Measures of Response Error for Reporting Completion of a Vocational Training Program, by Selected Demographic Characteristics

(Estimated measures are based on the reinterview definitions of vocational training which classifies persons as "completing a vocational training program" if they completed any training program which might be considered vocational other than those specifically excluded by the census instructions)

Category	Index of inconsistency for reporting vocational training	95-percent confidence interval for index of inconsistency	Percent completing a vocational training program according to the reinterview	Net difference rate	95-percent confidence interval for net difference rate
SEX					
Male.....	52	48.1 to 56.0	18.9	1.9	0.5 to 3.2
Female.....	43	39.3 to 46.5	18.6	-2.3	-3.4 to -1.2
AGE					
14 to 34 years.....	49	44.6 to 54.3	14.5	*0.6	-0.6 to 2.0
14 to 19.....	67	49.4 to 90.0	2.8	*0.4	-0.8 to 1.5
20 to 24.....	52	44.0 to 62.9	21.0	*0.5	-3.0 to 4.0
25 to 34.....	51	45.3 to 57.8	22.3	*1.0	-1.4 to 3.4
35 years or older.....	47	43.6 to 50.1	21.4	*-1.1	-2.3 to 0.1
35 to 44.....	47	41.5 to 53.0	25.5	*-1.2	-3.6 to 1.2
45 to 54.....	45	40.2 to 51.0	27.4	*-1.3	-3.6 to 1.0
55 to 64.....	49	42.0 to 56.6	19.6	*-1.3	-3.7 to 1.2
65 or older.....	56	46.8 to 67.0	10.9	*-0.6	-2.6 to 1.4
RACE					
White.....	47	44.4 to 50.0	19.0	*-0.3	-1.2 to 0.6
Negro and other.....	48	40.4 to 58.0	15.4	*-0.1	-2.6 to 2.4
YEARS OF SCHOOL COMPLETED					
Elementary:					
0 to 4 years.....	62	32.0 to 100.0	2.9	*-0.4	-2.6 to 1.9
5 to 7 years.....	61	46.3 to 80.9	7.4	*-1.9	-4.0 to 0.2
8 years.....	51	41.0 to 64.1	9.0	*0.6	-1.3 to 2.6
High school:					
1 to 3 years.....	47	41.2 to 54.4	12.6	*-0.2	-1.8 to 1.3
4 years.....	47	43.4 to 51.7	28.9	*-0.6	-2.4 to 1.3
College:					
1 to 3 years.....	53	46.8 to 60.4	32.8	*-2.4	-5.8 to 0.9
4 or more years.....	61	51.0 to 78.5	15.8	*1.9	-1.4 to 5.2
EMPLOYMENT STATUS					
Males 14 to 64 years old:					
In civilian labor force.....	52	48.2 to 56.9	23.0	2.2	0.4 to 4.0
Employed.....	52	48.2 to 57.1	23.1	2.2	0.4 to 4.0
Unemployed.....	51	34.0 to 80.2	20.2	*2.1	-6.6 to 10.9
Not in civilian labor force....	51	36.8 to 72.1	7.0	*-0.2	-2.4 to 2.1

See footnotes at end of table.

Table P. Summary Measures of Response Error for Reporting Completion of a Vocational Training Program, by Selected Demographic Characteristics—Continued

(Estimated measures are based on the reinterview definitions of vocational training which classifies persons as "completing a vocational training program" if they completed any training program which might be considered vocational other than those specifically excluded by the census instructions)

Category	Index of inconsistency for reporting vocational training	95-percent confidence interval for index of inconsistency	Percent completing a vocational training program according to the reinterview	Net difference rate	95-percent confidence interval for net difference rate
EMPLOYMENT STATUS—Con.					
Females 14 to 64 years old:					
In civilian labor force.....	43	38.1 to 48.1	28.0	-3.6	-5.8 to -1.5
Employed.....	42	37.1 to 47.3	28.7	-4.6	-6.8 to -2.4
Unemployed.....	57	39.6 to 87.8	17.2	11.5	1.5 to 21.5
Not in civilian labor force....	45	39.3 to 52.2	13.5	*-1.5	-3.0 to 0.0
MAJOR OCCUPATION DIVISION¹					
Males 14 to 64 years old:					
White collar.....	53	46.6 to 60.3	22.4	*2.7	-0.1 to 5.4
Blue collar.....	50	44.9 to 56.7	22.0	3.5	1.2 to 5.9
Farm worker.....	64	45.3 to 93.0	17.8	*-5.5	-12.3 to 1.4
Service worker.....	50	36.7 to 68.9	22.3	*-5.0	-10.6 to 0.7
Females 14 to 64 years old:					
White collar.....	47	42.1 to 52.8	29.5	-3.1	-5.5 to -0.7
Blue collar.....	37	25.2 to 53.4	11.7	*-1.0	-3.8 to 1.8
Farm worker.....	(S)	(S)	(S)	(S)	(S)
Service worker.....	36	28.2 to 45.9	23.8	*-2.8	-6.2 to 0.5
EARNINGS IN 1969					
Males 14 to 64 years old:					
Without earnings.....	48	38.4 to 61.4	11.5	*0.6	-1.9 to 3.2
With earnings.....	52	47.9 to 56.8	22.4	2.1	0.3 to 3.9
Less than \$5,000.....	54	44.1 to 67.6	11.3	*0.6	-2.0 to 3.2
\$5,000 to \$9,999.....	56	49.8 to 63.3	25.4	*2.3	-0.7 to 5.3
\$10,000 or more.....	51	44.1 to 58.9	29.0	*3.4	-0.2 to 7.0
Females 14 to 64 years old:					
Without earnings.....	43	36.8 to 50.4	14.3	-1.9	-3.5 to -0.3
With earnings.....	43	38.7 to 48.6	25.6	-3.0	-5.0 to -1.0
Less than \$5,000.....	43	37.6 to 50.0	22.6	-4.5	-6.6 to -2.3
\$5,000 to \$9,999.....	45	36.8 to 54.6	35.5	*1.0	-3.6 to 5.7
\$10,000 or more.....	75	48.3 to 100.0	18.9	*2.7	-14.4 to 19.8

(S) Does not meet publication standards.

*Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

¹Standard census occupation categories combined as follows: White collar—Professional, technical and kindred workers; managers and administrators; sales workers; clerical and kindred workers. Blue collar—Craftsmen and kindred workers; operators and laborers except farm. Farm worker—Farmers and farm managers; farm laborers and farm foremen. Service worker—Service workers including private household workers.

Source: Table 7.

Table Q. Summary Measures of Response Error for Reporting Main Field of Vocational Training

(For persons classified as "completing a vocational training program" in both census and reinterview. Estimated measures are based on the reinterview definition of vocational training which classifies persons as "completing a vocational training program" if they completed any training program which might be considered vocational other than those specifically excluded by the census instructions)

Category	Index of inconsistency for reporting main field of vocational training	95-percent confidence interval for index of inconsistency	Percent in class in reinterview	Net difference rate	95-percent confidence interval for net difference rate
Business.....	7	4.6 to 9.9	36.5	*-0.2	-1.5 to 1.0
Nursing.....	6	3.4 to 10.6	13.6	*0.5	-0.4 to 1.3
Trades.....	8	5.4 to 11.0	40.6	*-0.4	-1.7 to 1.0
Engineer.....	32	21.3 to 47.2	5.0	*-0.1	-1.3 to 1.1
Agriculture.....	14	6.5 to 28.6	3.0	*0.4	-0.3 to 1.0
Other.....	24	10.1 to 57.4	1.3	*-0.1	-0.7 to 0.5
L-fold index.....	9	7.1 to 12.2	(X)	(X)	(X)

(X) Not applicable.

*Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

Source: Tables 9 and 10.

Table R. Summary Measures of Response Error for Reporting Completion of a Vocational Training Program and Main Field of Vocational Training

(Includes errors in reporting completion of a vocational training program as well as errors in reporting main field of vocational training. Estimated measures are based on the reinterview definition of vocational training which classifies persons as "completing a vocational training program" if they completed any training program which might be considered vocational other than those specifically excluded by the census instructions)

Category	Index of inconsistency for reporting vocational training and main field of training	95-percent confidence interval for index of inconsistency	Percent in class in reinterview	Net difference rate	95-percent confidence interval for net difference rate
Completed vocational training program.....	47	44.8 to 50.2	18.3	*-0.2	-1.1 to 0.6
Business.....	43	39.0 to 47.7	6.8	-0.7	-1.3 to -0.2
Nursing.....	38	32.1 to 45.5	2.4	*-0.2	-0.5 to 0.1
Trades.....	45	41.0 to 49.4	7.3	*0.0	-0.5 to 0.6
Engineer.....	64	52.4 to 78.1	1.0	*0.3	0.0 to 0.6
Agriculture.....	54	41.0 to 70.9	0.6	*0.2	0.0 to 0.4
Other.....	65	44.7 to 93.5	0.2	*0.2	0.0 to 0.3
Did not complete vocational training program.....	47	44.8 to 50.2	81.7	*0.2	-0.6 to 1.1
L-fold index.....	46	43.8 to 48.9	(X)	(X)	(X)

(X) Not applicable.

*Indicates net difference rate is significantly different from zero at the 95-percent confidence level.

Source: Table 11.

**Table S. Index of Inconsistency for Vocational Training Questions,
Using Unreconciled Responses**

Item	Index of inconsistency for unreconciled data	95-percent confidence interval for index of inconsistency
Completed vocational training program...	55	52.1 to 57.8
Main field of training: ¹		
Business.....	13	9.5 to 17.3
Nursing.....	10	6.3 to 15.7
Trades.....	16	12.8 to 21.2
Engineer.....	55	40.1 to 76.5
Agriculture.....	26	13.9 to 47.8
Other.....	51	25.3 to 100.0
L-fold index.....	18	14.4 to 21.4

¹Based on persons classified as "completing a vocational training program"
in both census and reinterview.

Source: Tables 5 and 8.

PART 3

EVALUATION OF RESPONSES TO OTHER SELECTED POPULATION QUESTIONS

Background and Methodology

This section presents information on the quality of the data collected in the 1970 census for nativity, citizenship, year of immigration, country of birth of parents, year moved into present house, and number of children ever born. In general, the methods used to collect the data for these items in the reinterview were *not* the same as those used in the census. The data on nativity, year of immigration, and number of children ever born were collected in the reinterview by using a much more detailed battery of questions designed to provide a more accurate response than was obtained in the census. (See part 4 of appendix A.) For country of birth (of the individual and his parents), the question on the reinterview schedule was similar to that on the census questionnaire, but all persons reporting a different country of birth in the reinterview than in the census were subject to a reconciliation interview. The questions used in the reconciliation were designed to establish which response (i.e., the census or reinterview) was correct. (See part 4 of appendix B.) The reinterview question for the year moved into present house did not provide the response category "always lived in this same house or apartment" which was provided in the census. Persons were classified in this category in the reinterview whenever the date given for the year moved into present house was the same or before their reported year of birth. This question was asked only once for the head, wife, and own children and was asked for each other relative or nonrelative in the household.

Summary of Results

Nativity (5- and 15-Percent Questionnaires)

In the census, the category "native" comprises persons born in the United States, Puerto Rico, or in an outlying area of the United States as well as the small number of persons who, although they were born in a foreign country, have at least one parent born in the United States. Persons not classified as "native" are classified as "foreign born." For persons responding on the 5-percent census questionnaire, nativity was determined by the entry in the country-of-birth question and the entry in the question on citizenship which includes the response category "born abroad of American parents." For persons responding on the 15-percent questionnaire, nativity was determined by the entry in the place-of-birth question and the entry in the question on the birthplace of parents. Thus, errors in reporting both country of birth and citizenship affect the accuracy of the nativity classification as derived from the 5-percent questionnaires, while errors in reporting one's country of birth and one's parents' country of birth affect the quality of the nativity classification as derived from the 15-percent questionnaire. The following two paragraphs present the results of the analysis of the reinterview data for these two definitions of nativity.

Nativity Determined by Country of Birth of Individual and Citizenship (5-Percent Questionnaire)

The data provide no evidence of bias in the "native" and "foreign" classification using the country-of-birth and citizenship questions on the 5-percent questionnaire to define nativity. The net difference rates for these two categories are 0.0 (zero) with a 95-percent confidence interval of -0.1 to 0.1 percentage points. The reports to the country-of-birth and citizenship questions are highly consistent with those obtained in the reinterview. The index of inconsistency for persons reporting themselves as foreign born and naturalized is 10; for persons reporting themselves as foreign born and alien it is 7; and the index for persons reporting themselves as born abroad of American parents is 23. (See table T.)

Nativity Determined by Country of Birth of Individual and Parents (15-Percent Questionnaire)

The reinterview data provide no direct measure of the accuracy of the nativity classification derived from the country-of-birth entries on the 15-percent questionnaires. That is, there is no reinterview data which reflect the joint effect of errors in reporting the individual's country of birth and the parents' country of birth. The reinterview data, however, do provide response error measures separately for the individual's country of birth and country of birth of each parent for persons reporting themselves as foreign born. (See table U.)

There is no evidence of bias in reporting the individual's country of birth, and for persons reporting themselves as foreign born in the census, there is no evidence of bias in reporting their parents' country of birth.

The census and reinterview reports of the individual's country of birth are highly consistent. The index of inconsistency is 1 with a 95-percent confidence interval of 0.8 to 2.2. Similarly, for persons reporting themselves as foreign born in the census, the census and reinterview reports for parents' country of birth are highly consistent. The index of inconsistency is 3 for father's country of birth and 8 for mother's country of birth. The small net difference rates for the individual and for the mother and father of the individual, in conjunction with the highly consistent nature of the census and reinterview reports for country of birth, provide evidence that the nativity classifications derived from the country-of-birth questions on the 15-percent questionnaire are not subject to any serious bias.

Country of Birth of Parents (15-Percent Questionnaire)

There is evidence of a very slight bias in reporting one's father as born in the U.S. or foreign born. The category "born in U.S." is slightly overstated as the country of birth of father while the category "born in foreign country" is slightly understated. The net difference rate for reporting country of birth of father as U.S.

Table T. Summary Measures of Response Error for Nativity as Derived from the Place-of-Birth and Citizenship Questions on the 5-Percent Census Questionnaire

(Response error measures shown below reflect the joint effects of errors in reporting to the place-of-birth and citizenship questions on the 5-percent census questionnaires)

Nativity	Index of inconsistency for nativity	95-percent confidence interval for index of inconsistency	Percent in class in reinterview	Net difference rate	95-percent confidence interval for net difference rate
Native.....	5	3.4 to 6.2	95.5	*0.0	-0.1 to 0.1
Born in U.S.....	4	2.5 to 5.0	95.2	*0.0	-0.1 to 0.1
Born abroad of American parents.	23	14.4 to 37.8	0.3	*0.0	-0.1 to 0.1
Foreign.....	5	3.4 to 6.2	4.5	*0.0	-0.1 to 0.1
Naturalized.....	10	7.9 to 13.3	2.7	*0.1	-0.1 to 0.2
Alien.....	7	4.8 to 10.4	1.8	*-0.1	-0.2 to 0.0
L-fold index.....	7	5.4 to 8.7	(X)	(X)	(X)

(X) Not applicable.

*Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

Source: Table 12.

Table U. Summary Measures of Response Error for Reporting Country of Birth on the 15-Percent Census Questionnaire

Category	Index of inconsistency for country of birth	95-percent confidence interval for index of inconsistency	Percent in class in reinterview	Net difference rate	95-percent confidence interval for net difference rate
Country of birth of individual: ¹					
Born in U.S.....	1	0.8 to 2.2	94.9	*0.1	0.0 to 0.1
Foreign born.....	1	0.8 to 2.2	5.1	*-0.1	-0.1 to 0.0
Country of birth of father for persons reported as foreign born in the census: ²					
Born in U.S.....	3	1.0 to 8.8	9.8	*0.5	-0.2 to 1.6
Foreign born.....	3	1.0 to 8.8	90.2	*-0.5	-1.6 to 0.2
Country of birth of mother for persons reported as foreign born in the census: ³					
Born in U.S.....	8	3.8 to 16.5	8.9	*-0.5	-1.5 to 0.5
Foreign born.....	8	3.8 to 16.5	91.1	*0.5	-0.5 to 1.5

*Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

¹Source: Table 13.

²Source: Table 14, Individual foreign born.

³Source: Table 15, Individual foreign born.

is estimated to be 0.4 of a percentage point with a 95-percent confidence interval of 0.3 to 0.6 of a percentage point. About 85 percent of the fathers were born in the U.S., according to the reinterview. The reinterview data provide no evidence of bias in reporting country of birth of mother, although the 95-percent confidence interval associated with the estimated net difference rate for "born in U.S." indicates that if a reporting bias exists, the bias is also in the direction of slightly overreporting this category. The census and reinterview reports for country of birth of both mother and father are highly consistent as the index of inconsistency for U.S. and foreign-born categories is 3 for both father and mother. (See table V.)

Citizenship (5-Percent Questionnaire)

For persons reporting themselves as foreign born in both the census and reinterview there is evidence of bias in the "natural-

ized" and "alien" categories. The data indicate that the "naturalized" category is overstated while the "alien" category is understated. The net difference rate for the "naturalized" category is about 2.6 percentage points, and this category contains about 54.7 percent of the foreign-born persons according to the reinterview. The net difference rate for the "alien" category is about -2.2 percentage points and this category contains about 38.3 percent of the foreign-born persons according to the reinterview. (See table W.)

In general, the direction of the bias in the "naturalized" and "alien" categories is what one would expect recognizing that persons undergoing the naturalization process but not having completed it might tend to report themselves as naturalized and that unregistered aliens might also tend to report themselves as naturalized.

Table V. Summary Measures of Response Error for Reporting Country of Birth of Parents on the 15-Percent Census Questionnaire

Category	Index of inconsistency for reporting country of birth of parents	95-percent confidence interval for index of inconsistency	Percent in class in reinterview	Net difference rate	95-percent confidence interval for net difference rate
FATHER¹					
Born in U.S.....	3	2.1 to 3.4	85.0	0.4	0.3 to 0.6
Foreign born.....	3	2.1 to 3.4	15.0	-0.4	-0.6 to -0.3
MOTHER²					
Born in U.S.....	3	2.1 to 3.4	86.4	*0.2	0.0 to 0.3
Foreign born.....	3	2.1 to 3.4	13.6	*-0.2	-0.3 to 0.0

*Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

¹Source: Table 14, Total persons.

²Source: Table 15, Total persons.

Table W. Summary Measures of Response Error for Reporting Citizenship on the 5-Percent Census Questionnaire

(Response error measures shown below are based on persons reporting themselves as foreign born in both census and reinterview)

Category	Index of inconsistency for naturalization	95-percent confidence interval for index of inconsistency	Percent in class in reinterview	Net difference rate	95-percent confidence interval for net difference rate
Naturalized.....	13	9.5 to 19.0	54.7	2.6	0.3 to 4.9
Alien.....	9	5.8 to 13.9	38.3	-2.2	-4.1 to -0.3
Born abroad of American parents...	19	10.7 to 33.5	7.0	*-0.4	-1.8 to 1.0
L-fold index.....	12	8.6 to 17.2	(X)	(X)	(X)

(X) Not applicable.

*Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

Source: Table 12.

Year of Immigration (5-Percent Questionnaire)

The accuracy of the published census data on year of immigration is subject to errors in reporting both country of birth and year of immigration. The reinterview data provide no evidence of bias in the "year of immigration" categories when both sources of error are considered. The net difference rates are all equal to 0.1 of a percentage point or less, and each 95-percent confidence interval includes zero as a possible value. The census and reinterview reports for place of birth and year of immigration are highly consistent as evidenced by the L-fold index of inconsistency of 10. (See table X.)

The responses for the individual year of immigration categories tend to become less consistent as the year of immigration becomes further removed from 1970. This is evidenced by the increasing nature of the indices within the categories having 5-year intervals (i.e., 1965-1970 through 1945-1949). Increasing the interval from 5 to 10 years interrupts the pattern as the introduction of the larger intervals produces fewer inconsistencies in the data. However, the increasing pattern then is continued within the categories having 10-year intervals.

Year Moved Into Present House (15-Percent Questionnaire)

The response category "always lived in same house" is substantially understated in the census. The proportion of persons in this category in the reinterview is 14.6 percent while only 6.5 percent of the persons are in this category in the census. This difference of 8.1 percentage points represents about a 55-percent understatement of this category in the census. As a result of this large understatement, the reinterview data indicate

that all of the other categories except "1949 or earlier" are overstated. The net difference rates associated with the "1969-1970," "1965-1968," "1960-1964," and "1950-1959" categories are 1.0, 2.5, 2.2, and 2.1 percentage points, respectively. (See table Y.)

Analysis of the reporting errors according to the relationship of each individual in the household to the head of the household shows that the substantial undercount of persons in the "always lived in same house" category resulted almost totally from the undercount in this category for persons classified as "son or daughter of head." Also, the overall undercount was slightly reduced as a result of overreporting in this category by persons classified as "head of household" and "wife of head." (See table Y.)

About 33.4 percent of the "sons and daughters of head" were classed in the "always lived in same house" category in the reinterview, while only 12.7 percent were classified in this category in the census—a difference of 20.7 percentage points. The reinterview and census proportions of persons in this category for "other related and unrelated individuals" were 17.6 percent and 9.3 percent, respectively—a difference of 8.3 percentage points. The net difference rates for "head of household" and "wife of head" were only 1.3 and 0.8 percentage points, respectively, although these difference rates are large when compared to the proportion of persons in these categories according to the reinterview—about 1.0 and 0.4 percent, respectively.

As indicated in the discussion of background and methodology for this section, in the reinterview persons were classified as "always lived in same house" whenever the date given for the year moved into present house was the same or before their year of birth. This question was asked only once for the head, wife,

Table X. Summary Measures of Response Error for Reporting Nativity and Year of Immigration on the 5-Percent Census Questionnaire

(Response error measures shown below reflect the joint effect of errors in reporting to the place of birth, citizenship and year of immigration questions on the 5-percent census questionnaire)

Nativity by year of immigration	Index of inconsistency for nativity and year of immigration	95-percent confidence interval for index of inconsistency	Percent in class in reinterview	Net difference rate	95-percent confidence interval for net difference rate
Native ¹	4	3.2 to 6.0	95.6	*0.0	-0.1 to 0.1
Foreign.....	4	3.2 to 6.0	4.4	*0.0	-0.1 to 0.1
1965 to 1970.....	11	7.1 to 16.6	1.0	*-0.1	-0.2 to 0.0
1960 to 1964.....	17	10.9 to 26.6	0.6	*0.0	-0.1 to 0.1
1955 to 1959.....	18	11.4 to 29.7	0.4	*0.1	0.0 to 0.2
1950 to 1954.....	21	11.7 to 36.7	0.2	*0.1	0.0 to 0.2
1945 to 1949.....	25	14.2 to 42.5	0.3	*0.0	-0.1 to 0.0
1935 to 1944.....	15	6.4 to 36.1	0.2	*0.0	-0.1 to 0.0
1925 to 1934.....	17	9.6 to 28.6	0.4	*0.0	0.0 to 0.1
1915 to 1924.....	19	12.4 to 27.9	0.6	*0.0	-0.1 to 0.1
Before 1915.....	11	7.2 to 17.5	0.8	*0.0	-0.1 to 0.1
L-fold index.....	10	8.2 to 12.4	(X)	(X)	(X)

(X) Not applicable.

*Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

¹Includes persons born in U.S., Puerto Rico, and other outlying areas of U.S. as well as persons born abroad of American parents.

Source: Table 16.

Table Y. Summary Measures of Response Error for Reporting Year Moved Into Present House, by Relationship to Head of Household

Category	Index of inconsistency for reporting year moved into present house	95-percent confidence interval for index of inconsistency	Percent in class in reinterview	Net difference rate	95-percent confidence interval for net difference rate
TOTAL SAMPLE PERSONS					
1969 to 1970.....	16	14.8 to 17.7	16.3	1.0	0.6 to 1.4
1965 to 1968.....	21	19.2 to 21.9	28.5	2.5	2.0 to 3.1
1960 to 1964.....	25	23.2 to 26.8	16.7	2.2	1.6 to 2.7
1950 to 1959.....	24	21.8 to 25.4	15.4	2.1	1.6 to 2.6
1949 or earlier.....	17	15.2 to 19.2	8.5	*0.3	0.0 to 0.6
Always lived in same house.....	61	57.5 to 63.9	14.6	-8.1	-8.7 to -7.4
L-fold index.....	25	24.6 to 26.5	(X)	(X)	(X)
HEAD OF HOUSEHOLD					
1969 to 1970.....	11	8.9 to 13.2	16.7	*-0.4	-1.0 to 0.2
1965 to 1968.....	14	12.3 to 16.3	29.2	*0.2	-0.6 to 1.1
1960 to 1964.....	18	15.3 to 20.8	17.3	*-0.3	-1.0 to 0.5
1950 to 1959.....	14	12.1 to 16.7	20.9	-1.1	-1.8 to -0.3
1949 or earlier.....	16	13.3 to 18.8	14.9	*0.2	-0.5 to 0.9
Always lived in same house.....	57	44.4 to 73.1	1.0	1.3	0.8 to 1.8
L-fold index.....	15	14.1 to 16.9	(X)	(X)	(X)
WIFE OF HEAD					
1969 to 1970.....	11	8.3 to 13.4	15.9	*0.1	-0.6 to 0.8
1965 to 1968.....	14	11.6 to 16.1	30.7	*-0.2	-1.2 to 0.8
1960 to 1964.....	18	15.0 to 21.1	18.7	*-0.1	-1.0 to 0.8
1950 to 1959.....	13	10.6 to 15.5	21.4	*-0.8	-1.6 to 0.0
1949 or earlier.....	15	12.5 to 19.1	12.9	*0.3	-0.5 to 1.0
Always lived in same house.....	73	50.0 to 100.0	0.4	0.8	0.3 to 1.2
L-fold index.....	15	13.0 to 16.2	(X)	(X)	(X)
SON OR DAUGHTER OF HEAD					
1969 to 1970.....	23	20.5 to 26.1	14.8	2.6	1.8 to 3.4
1965 to 1968.....	29	26.9 to 31.7	27.0	5.9	4.8 to 6.9
1960 to 1964.....	33	30.2 to 36.6	15.4	5.7	4.7 to 6.6
1950 to 1959.....	44	39.7 to 48.7	8.5	6.1	5.2 to 7.0
1949 or earlier.....	41	30.0 to 55.6	1.0	0.5	0.2 to 0.8
Always lived in same house.....	68	64.2 to 71.3	33.4	-20.7	-22.2 to -19.1
L-fold index.....	40	38.3 to 41.9	(X)	(X)	(X)
OTHER RELATED OR UNRELATED INDIVIDUALS					
1969 to 1970.....	20	15.2 to 27.1	25.9	*1.7	-0.7 to 4.0
1965 to 1968.....	24	18.1 to 30.6	26.2	3.2	0.6 to 5.7
1960 to 1964.....	35	26.9 to 46.2	14.8	*0.3	-2.1 to 2.8
1950 to 1959.....	43	32.2 to 57.6	8.3	3.5	1.2 to 5.8
1949 or earlier.....	30	20.0 to 45.1	7.3	*-0.3	-2.0 to 1.3
Always lived in same house.....	56	45.9 to 69.3	17.6	-8.3	-11.3 to -5.3
L-fold index.....	32	28.2 to 37.1	(X)	(X)	(X)

(X) Not applicable.

*Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

Source: Table 17.

and own children; therefore, whole families were assumed to have moved in at the time indicated by the household respondent. Undoubtedly, this assumption was not valid for all cases. For example, if a man had always lived in the same house or apartment and, when he married, his wife had moved into that house with him, his wife would have been allocated to "always lived in same house" in the reinterview if the man had been the household respondent for the "year moved into present house" question. In addition, the rule used to allocate children of the head to the "always lived in same house" category in the reinterview tends to produce a slight overestimate in this category as children may not have always lived with their parents since birth. These potential errors in the reinterview data, however, would not appear to account for the differences indicated above, especially for the "always lived in same house" category for children of the head. Additional detailed tabulations for children of heads who were classified as "always lived in same house" on the basis of the reinterview indicate that, for many of these children, the year moved into present house as reported in the census corresponds roughly to the year they were born.

Overall, the census and reinterview reports for the specific year responses are fairly consistent while those for the "always lived in same house" response are highly inconsistent. The indices of inconsistency for the "year" categories range from 16 to 25, while the index for the "always lived in same house" category is 61. This same pattern is evident for persons classified as "head of household" and "wife of head." For persons classified as "son or daughter of head" and "other related and unrelated individuals," the indices for the "year" categories are somewhat larger as are the L-fold indices. (See table Y.)

The published census distributions for the year moved into present house before and after computer allocation indicate that the understatement in the "always lived in same house" category

was not corrected by the allocation rules employed. The proportion of persons classified as "always lived in same house" was 5.3 percent before allocation and 6.1 percent after allocation. (See table Z.)

Number of Children Ever Born (5- and 15-Percent Questionnaires)

There is evidence that the census count of ever-married females 14 to 64 years old reporting no children ever born is overstated. That is, more women have had children than the census data indicate. About 12.9 percent of ever-married females reported in the reinterview that they had borne no children while 13.9 percent had so reported in the census. There is no evidence of bias in any of the other categories of this distribution. (See table AA for total females.) The bias in the "none" category is also reflected in the difference between the census and reinterview estimates of the number of children ever born per 1,000 ever-married females 14 to 64 years old. Using the data provided in table 20 and allocating exactly 13 children to each woman reporting 12 or more children ever born, a total of 13,629 children were reported by these women in the census while 14,003 were reported by the same women in the reinterview. The corresponding numbers of children ever born per 1,000 women are 2,572 and 2,643, reflecting a net understatement of 2.7 percent in the census rate as compared with the reinterview rate for identical women.

Overall, the consistency of reporting the number of children ever born is good as evidenced by the L-fold index of 12. The categories "none," "one," "two," and "three" are particularly well reported, with indices on the order of 12 or less, but the reporting was less consistent for the remaining categories. (See table AA for total females.)

Table Z. Census Distribution of Persons by Year Moved Into Present House, Before and After Computer Allocation, Total U.S.

(The term "allocation" means that a characteristic was assigned in the absence of a machine-readable entry or changed to be consistent with other entries during computer editing)

Year moved into present house	Before allocation ¹		After allocation ²	
	Number	Percent	Number	Percent
Total persons.....	203,212,877	(X)	203,210,158	(X)
Not reported.....	11,753,310	5.8	(X)	(X)
Reported.....	191,459,567	100.0	203,210,158	100.0
1969 and 1970.....	45,067,090	23.6	47,662,479	23.4
1968.....	20,387,065	10.6	61,191,199	30.1
1967.....	14,382,252	7.5		
1965 and 1966.....	23,212,320	12.1		
1960 to 1964.....	33,137,522	17.3	34,685,416	17.1
1950 to 1959.....	30,348,746	15.9	31,671,495	15.6
1949 or earlier.....	14,807,042	7.7	15,666,633	7.7
Always lived in this house.....	10,117,530	5.3	12,332,936	6.1

(X) Not applicable.

¹Source: Table C-3, U.S. Bureau of Census, Census of Population: 1970 General Social and Economic Characteristics, Final Report PC(1)-C1, "United States Summary."

²Source: Table 87, U.S. Bureau of Census, Census of Population: 1970 General Social and Economic Characteristics, Final Report PC(1)-C1, "United States Summary."

Table AA. Summary Measures of Response Error for Reporting Number of Children Ever Born, by Race and Age, 1970 Census

(Response error measures shown below are based on reports for ever-married females 14 to 64 years old in both census and reinterview)

Category	Index of inconsistency for reporting number of children ever born	95-percent confidence interval for index of inconsistency	Percent in class in reinterview	Net difference rate	95-percent confidence interval for net difference rate
TOTAL FEMALES					
None.....	9	7.2 to 10.6	12.9	1.0	0.6 to 1.4
1.....	9	7.9 to 11.1	17.0	*0.1	-0.3 to 0.6
2.....	9	8.2 to 11.0	25.0	*0.0	-0.5 to 0.6
3.....	10	8.8 to 12.0	18.6	*-0.3	-0.8 to 0.2
4.....	15	13.1 to 17.9	11.4	*-0.2	-0.6 to 0.3
5.....	17	13.7 to 20.0	6.7	*0.0	-0.4 to 0.4
6.....	18	14.0 to 23.0	3.7	*-0.2	-0.6 to 0.1
7.....	22	16.9 to 29.7	2.2	*0.0	-0.3 to 0.2
8.....	38	27.2 to 52.7	1.0	*-0.2	-0.4 to 0.0
9.....	34	21.8 to 51.7	0.6	*-0.1	-0.3 to 0.1
10.....	42	25.8 to 69.3	0.3	*0.0	-0.1 to 0.2
11.....	30	13.6 to 66.6	0.2	*0.0	-0.1 to 0.1
12 or more.....	30	17.0 to 53.2	0.4	*-0.2	-0.3 to 0.0
L-fold index.....	12	11.2 to 13.2	(X)	(X)	(X)
RACE					
White:					
None.....	8	6.5 to 10.0	12.4	1.0	0.6 to 1.4
1.....	8	6.9 to 10.2	16.9	*0.0	-0.4 to 0.4
2.....	9	7.5 to 10.3	25.9	*0.3	-0.2 to 0.8
3.....	10	8.1 to 11.4	19.2	*-0.4	-0.9 to 0.1
4.....	13	11.2 to 16.0	11.7	*-0.4	-0.8 to 0.1
5.....	15	11.8 to 18.2	6.6	*0.0	-0.4 to 0.4
6.....	16	12.1 to 21.5	3.4	*-0.2	-0.5 to 0.1
7.....	21	14.9 to 28.6	2.0	*0.0	-0.3 to 0.2
8.....	33	21.6 to 49.4	0.8	*-0.1	-0.3 to 0.1
9.....	33	18.9 to 59.2	0.4	*0.0	-0.2 to 0.1
10.....	43	22.3 to 82.7	0.2	*0.0	-0.2 to 0.1
11.....	20	6.7 to 60.1	0.2	*0.0	-0.1 to 0.1
12 or more.....	27	12.3 to 60.6	0.3	*-0.1	-0.3 to 0.0
L-fold index.....	11	9.8 to 11.9	(X)	(X)	(X)
Negro and other:					
None.....	11	7.1 to 18.0	16.6	*0.7	-0.8 to 2.2
1.....	15	10.3 to 22.4	17.9	*1.4	-0.4 to 3.3
2.....	17	11.8 to 25.3	17.7	*-2.3	-4.2 to -0.4
3.....	16	10.8 to 25.2	13.3	*0.7	-1.0 to 2.4
4.....	34	24.1 to 46.7	9.7	*1.8	-0.4 to 3.9
5.....	32	21.0 to 47.3	7.3	*0.0	-1.8 to 1.8
6.....	28	17.2 to 46.2	5.7	*-0.7	-2.2 to 0.8
7.....	31	17.6 to 55.0	3.7	*-0.4	-1.6 to 0.9
8.....	56	31.4 to 98.3	2.3	*-0.7	-2.0 to 0.6
9.....	34	17.7 to 65.7	2.6	*-0.5	-1.6 to 0.6
10.....	38	17.2 to 84.2	1.2	*0.4	-0.6 to 1.3
11.....	(S)	(S)	0.4	(S)	(S)
12 or more.....	38	17.2 to 84.2	1.6	*-0.4	-1.3 to 0.6
L-fold index.....	22	18.6 to 26.2	(X)	(X)	(X)

See footnotes at end of table.

Table AA. Summary Measures of Response Error for Reporting Number of Children Ever Born, by Race and Age, 1970 Census—Continued

(Response error measures shown below are based on reports for ever-married females 14 to 64 years old in both census and reinterview)

Category	Index of inconsistency for reporting number of children ever born	95-percent confidence interval for index of inconsistency	Percent in class in reinterview	Net difference rate	95-percent confidence interval for net difference rate
AGE					
20 to 44 years old:					
None.....	7	4.6 to 9.7	10.7	0.6	0.1 to 1.1
1.....	8	5.6 to 10.5	14.4	*0.4	-0.2 to 1.0
2.....	9	6.7 to 11.0	24.1	*-0.4	-1.2 to 0.4
3.....	9	7.3 to 11.9	21.2	*0.1	-0.8 to 0.8
4.....	13	10.3 to 16.9	13.4	*0.2	-0.6 to 1.0
5.....	17	12.7 to 22.4	7.3	*0.1	-0.6 to 0.7
6.....	14	9.5 to 21.3	4.2	*-0.3	-0.8 to 0.2
7.....	24	15.1 to 38.5	1.8	*-0.1	-0.5 to 0.3
8.....	20	11.2 to 36.7	1.4	*-0.2	-0.6 to 0.1
9.....	31	15.5 to 61.9	0.6	*0.0	-0.3 to 0.3
10.....	30	12.4 to 70.3	0.4	*0.1	-0.2 to 0.3
11.....	(S)	(S)	0.2	(S)	(S)
12 or more.....	23	7.7 to 69.4	0.4	*-0.1	-0.4 to 0.1
L-fold index.....	11	9.4 to 12.5	(X)	(X)	(X)
45 to 64 years old:					
None.....	8	5.8 to 10.6	13.8	0.6	0.0 to 1.2
1.....	11	8.5 to 13.8	16.6	*0.2	-0.6 to 0.9
2.....	10	8.3 to 12.7	24.9	*0.8	0.0 to 1.6
3.....	11	8.8 to 14.0	17.8	*-0.5	-1.2 to 0.3
4.....	18	14.6 to 23.0	10.4	*-0.4	-1.1 to 0.4
5.....	18	13.5 to 23.6	6.7	*0.2	-0.5 to 0.8
6.....	22	15.3 to 30.3	3.8	*-0.4	-0.9 to 0.2
7.....	24	16.5 to 34.2	2.9	*0.0	-0.5 to 0.5
8.....	61	40.4 to 90.8	1.0	*-0.2	-0.6 to 0.3
9.....	32	17.5 to 57.4	0.9	*-0.3	-0.6 to 0.0
10.....	56	29.9 to 100.0	0.4	*0.1	-0.2 to 0.4
11.....	23	7.7 to 69.4	0.2	*0.1	0.0 to 0.4
12 or more.....	36	18.8 to 69.7	0.7	*-0.2	-0.5 to 0.1
L-fold index.....	14	12.2 to 15.4	(X)	(X)	(X)

(X) Not applicable.

(S) Does not meet publication standards.

*Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

Source: Table 18.

Analysis of the distribution of response errors for number of children ever born, by race and age, indicates that the reporting bias indicated above for the "none" category is evident in the distribution for white females and for females 20 to 44 years old. For females 45 to 64 years old, there is no evidence of bias in the "none" category on the basis of this sample, although the 95-percent confidence interval associated with the net difference rate indicates that the bias, if it exists, is also in the direction of overstating this category. In addition, there are no major differences in the consistency of reporting, by race and age, the number of children ever born. The L-fold index of inconsistency was 11 for whites, 22 for Negro and other races, 9 for ages 14 to 44, and 14 for ages 45 to 64. (See table AA.)

A comparison was made of the indices of inconsistency for number of children ever born to ever-married females 14 to 64 years old in the 1970 census and for ever-married females 14 years and older in the 1960 census. The comparison indicates

that the 1970 census reports are, in general, as consistent as the 1960 reports. The L-fold index of inconsistency in 1960 was 10 (see table BB) while in 1970 it was 12 (see table AA).

Comparison of Census Estimates From the Reinterview Sample With Published Census Data

In general, the proportion of persons in the various categories of the distributions described in this section, as estimated from the census responses for persons in the reinterview sample, are comparable to the proportions shown in the published census data. One notable exception is the "1969 to 1970" category of the "year moved into present house" question. About 23.6 percent of all persons were classed in this category before allocation according to the published census data, as compared to the reinterview sample estimate of 17.3 percent. A discussion of the effects of noninterview and matching problems on the response error measures is provided in part 5.

Table BB. Summary Measures of Response Error for Reporting Number of Children Ever Born, 1960 Census

(Response error measures shown below are based on response error estimates for ever-married females 14 years and older)

Number of children ever born to females 14 years and older	Index of inconsistency for reporting number of children ever born	95-percent confidence interval for index of inconsistency	Percent in class in reinterview	Net difference rate	95-percent confidence interval for net difference rate
None.....	7	5.3 to 9.7	15.0	*0.5	-0.1 to 1.0
1.....	8	6.3 to 10.7	17.8	*0.6	-0.0 to 1.3
2.....	9	7.0 to 10.9	25.4	*0.0	-0.7 to 0.8
3.....	9	6.7 to 11.2	18.4	*-0.6	-1.2 to 0.1
4.....	12	8.7 to 15.4	10.1	*-0.4	-1.0 to 0.2
5.....	16	10.7 to 21.5	4.7	*0.4	-0.1 to 0.9
6.....	15	8.1 to 22.0	2.9	*-0.3	-0.7 to 0.1
7.....	11	4.7 to 18.1	2.3	*-0.2	-0.5 to 0.1
8.....	13	5.5 to 23.7	0.9	*0.0	-0.2 to 0.2
9.....	12	5.1 to 21.6	1.0	*0.1	-0.1 to 0.3
10.....	4	0.8 to 21.7	0.5	*0.0	-0.1 to 0.1
11.....	12	4.0 to 36.0	0.5	*0.0	-0.2 to 0.1
12 or more.....	21	7.8 to 41.0	0.5	*0.1	-0.3 to 0.1
L-fold index.....	10	8.4 to 11.2	(X)	(X)	(X)

(X) Not applicable.

*Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

Source: Table 13 of U.S. Bureau of the Census, Evaluation and Research Program for the U.S. Censuses of Population and Housing, 1960, ER60-4, "Accuracy of Data on Population Characteristics as Measured by Reinterviews." The measures were computed using the formulas given in appendix C.

The Content Reinterview Study was conducted as part of the 1970 Census Evaluation and Research Program. It was designed to produce data on the accuracy of responses to various questions included on the 1970 census questionnaire. The sample for this study was selected in three stages. The first stage involved the selection of a set of primary sampling units (PSU's). A PSU consists of a county, a group of contiguous counties, or an SMSA (Standard Metropolitan Statistical Area). This stage of selection made use of an existing sample of PSU's designated for the 235-PSU design. These PSU's are also used for many of the other sample programs conducted by the Bureau of the Census and a detailed discussion of the principles used in the selection of PSU's is provided in reference 18. The PSU's designated for the 235-PSU design comprise 484 counties and independent cities representing the 50 States and the District of Columbia.

The second stage of selection involved systematically designating clusters of long-form (census sample) households within each PSU such that each cluster was expected to include two 5-percent addresses and six 15-percent addresses. At the third and final stage of selection, each of the 5-percent addresses and one-third of the 15-percent addresses were selected; as a result each designated cluster was expected to include two 5-percent addresses and two 15-percent addresses. The final sample for the Content Reinterview Study consisted of approximately 10,300 addresses about equally divided between those scheduled to complete a 5-percent long-form questionnaire and those scheduled to complete a 15-percent long-form questionnaire.

The questions on origin or descent, vocational training, citizenship and year of immigration were to be answered by persons in 5-percent households. The questions on mother tongue, country of birth of parents, and year moved into present house were to be answered by persons in 15-percent households. The questions on nativity and number of children ever born were to be answered by persons in both 5-percent and 15-percent households. As indicated in table CC, the sample of addresses designated to receive a 5-percent census questionnaire included 5,178 addresses, of which 4,644 were occupied at the time of reinterview; 388 were found to be vacant, and 146 reportedly did not exist as a housing unit (i.e., the unit at the address had burned, had been demolished, or could not be found by the reinterviewer). The sample of addresses designated to receive a 15-percent census questionnaire included 5,094 addresses of which 4,594 were occupied at the time of the reinterview; 371 were found to be vacant and 126 reportedly did not exist as a housing unit.

The reinterviews were conducted by the permanent staff of field interviewers who work on other sample surveys conducted by the Bureau. While this may have resulted in higher costs for the field work than hiring temporary personnel to conduct the reinterviews, it was felt that gains in quality would result. The permanent staff is familiar with the Bureau's concepts, definitions, and data-collection procedures and readily could be trained

to adapt to special interviewing features required in the reinterview. The interviewers were given special training consisting of 1 day of home study and practice interviewing and 1 day of classroom training on the techniques to be used in collecting data for the Content Reinterview Study.

Field reinterviewing began in early June 1970 and was carried out on a flow basis ending in November 1970, with the majority of the work completed by the end of September. The reinterviews were conducted at the address as it was found, without reference to the occupants at the time of the census. Movers were not followed up for reinterview. The reinterviews were conducted independent of the census enumeration. The interviewer was not given the names of people living at the sample addresses nor did he know how the sample household had answered the various questions on its census questionnaire. In general, the interviewer was required to interview each person 18 years and older for himself, to interview a parent or guardian for persons under 14 years of age, and to interview either the person himself or the parent for persons 14 to 17 years old.

After the field work was completed, the reinterview questionnaires were sent to the central processing unit in Jeffersonville, Ind., where a separate staff obtained the decennial census questionnaire for that same address in order to compare the census and reinterview data.¹⁰

Subsequent operations classified the census and reinterview questionnaires associated with each sample address as "matched" or "not matched" and identified identical persons on matched questionnaires.¹¹

At the conclusion of these operations there were 3,575 matched 5-percent households and 3,681 matched 15-percent households containing 10,815 and 11,332 identical persons, respectively. They form the basis of the response error analysis for the items included in this report. (See the third column of table CC, and the second column of table DD.)

For identical persons listed on the two questionnaires, the office staff compared the responses for the various population questions being evaluated in this report (as well as for the other data items). For several of the characteristics (i.e., mother tongue, vocational training, Spanish origin or descent, and country of birth) another interview was conducted for certain cases to reconcile differences found between the census and reinterview responses.

¹⁰The last column of table CC shows that the census questionnaires could not be obtained for 1,058 sample addresses. The majority of these questionnaires were in various stages of census processing which could not be interrupted.

¹¹For this study, questionnaires were considered to be matched if at least one person with the same name was listed on each questionnaire and persons on these questionnaires with the same name were classified as "identical."

In the preparation of the tables and computation of the indices, reconciled data were used for mother tongue, vocational training, and country of birth, and unreconciled data were used for all other items (Spanish origin, country of birth of parents, citizenship, etc.).

The data on the census, reinterview, and reconciliation questionnaires were coded to a worksheet which was used to produce a computer tape containing all sets of data for each person. The detailed tables were derived from computer tabulations prepared from this tape.

Table CC. Results of Matching Households to a Census Questionnaire for the Reinterview Sample of Addresses Designated to Receive a 5- or 15-Percent Census Questionnaire

Reinterview results	1970 census enumeration results							
	Total sample addresses	Address enumerated on correct questionnaire ¹				Address enumerated on incorrect questionnaire	Address deleted from census ²	Census questionnaire for address not obtained ³
		Total	Occupied		Vacant			
			Household matched	Household not matched				
Combined reinterview samples of addresses designated to receive a 5- or 15-percent census questionnaire:								
Total sample addresses..	10,272	9,051	7,261	1,100	690	100	63	1,058
Occupied.....	9,241	8,248	7,260	770	218	100	62	862
Reinterviewed.....	8,822	7,877	⁵ 7,256	427	194	100	31	814
Not reinterviewed.....	419	371	-	347	24	-	-	48
Vacant.....	759	651	-	261	390	-	32	76
Other ⁴	272	152	-	70	82	-	-	120
Reinterview sample of addresses designated to receive a 5-percent census questionnaire:								
Total sample addresses..	5,178	4,480	3,578	573	329	82	31	585
Occupied.....	4,644	4,084	3,577	393	114	82	31	478
Reinterviewed.....	4,438	3,903	⁵ 3,575	225	103	82	-	453
Not reinterviewed.....	206	181	-	170	11	-	-	25
Vacant.....	388	316	-	136	180	-	-	41
Other ⁴	146	80	-	45	35	-	-	66
Reinterview sample of addresses designated to receive a 15-percent census questionnaire:								
Total sample addresses..	5,094	4,571	3,683	527	361	18	32	473
Occupied.....	4,594	4,164	3,683	377	104	18	31	384
Reinterviewed.....	4,384	3,974	⁵ 3,681	202	91	18	31	361
Not reinterviewed.....	213	190	-	177	13	-	-	23
Vacant.....	371	335	-	125	210	-	1	35
Other ⁴	126	72	-	25	47	-	-	54

- Represents zero.

¹Indicates addresses which were designated to receive a 5- or 15-percent questionnaire and were enumerated on the correct type of sample questionnaire.

²Addresses were deleted from the census address listings as a result of enumerator followup when it was found that an address did not exist or the same address was listed two or more times.

³The majority of these questionnaires were in various stages of census processing which could not be interrupted.

⁴Includes addresses which were nonresidential, demolished since the census, and not found.

⁵A household was classified as "matched" if at least one person with the same name was listed on the reinterview and census questionnaires. These households include the persons shown in table K.

Table DD. Results of Matching Persons in Matched Households to Census Questionnaires

Reinterview results	Total persons in matched households as of the reinterview	1970 census enumeration results				
		On census questionnaire with sample population pages filled			On census questionnaire with sample population page blank or not available	Not on census questionnaire
		Total	Population subgroup same as in reinterview ¹	Population subgroup different than in reinterview		
Combined reinterview samples of addresses, designated to receive a 5- or 15-percent census questionnaire:						
Total persons in matched households..	23,513	22,235	(X)	(X)	367	911
Person reinterviewed.....	23,247	22,147	(X)	(X)	362	738
Ever-married female						
14-64 years old.....	5,570	5,570	5,396	174	-	-
Person not reinterviewed...	266	88	(X)	(X)	5	173
Reinterview sample of addresses designated to receive a 5-percent census questionnaire:						
Total persons in matched households..	11,507	10,873	(X)	(X)	174	460
Person reinterviewed.....	11,353	10,815	(X)	(X)	170	368
14 years old and older...	7,949	7,949	7,858	91	(X)	(X)
Ever-married female						
14-64 years old.....	2,704	2,704	2,600	104	-	-
Person not reinterviewed...	154	58	(X)	(X)	4	92
Reinterview sample of addresses designated to receive a 15-percent census questionnaire:						
Total persons in matched households..	12,006	11,362	(X)	(X)	193	451
Person reinterviewed.....	11,894	11,332	(X)	(X)	192	370
Ever-married female						
14-64 years old.....	2,866	2,866	2,796	70	-	-
Person not reinterviewed...	112	30	(X)	(X)	1	81

(X) Not applicable.

- Represents zero.

¹Denotes ever-married females 14 to 64 years old in both census and reinterview.

PART 5

LIMITATIONS OF DATA

The summary measures of response error presented in this report are subject to a number of limitations.

Sampling Variability

The data are shown as numbers of sample persons and not as inflated national estimates. The reinterview sample of addresses designated to receive a 5- or 15-percent census questionnaire was selected using equal probability methods so that each sample case had the same weight.

Since the figures in this report are based on the sample data, they are subject to sampling variability. The measures of response error derived from these data are accompanied by an estimated 95-percent confidence interval. That is, the chances are about 95 out of 100 that the interval includes the average value of the estimates of the response error measures that could be obtained from all possible samples. The 95-percent confidence intervals were estimated by assuming that the sample design consisted of a simple random sample of persons rather than the design actually used (i.e., a stratified multistage systematic cluster sample of households). The estimated intervals are understated to the extent that there is variability between nonself-representing PSU's and clustering of response errors within segments and households. Thus, these intervals should be interpreted as providing an indication of only the minimum amount of sampling variability associated with the estimates.

Source of Response Errors

The census data used in these analyses were obtained from the census schedules for persons enumerated in the census before any changes or imputations were made as part of coding and computer processing. Thus, the response error measures reflect only response errors which occurred during the field data-collection process and do not reflect errors introduced during data processing or the effects on the statistics of persons missed in the census.

Distribution of Response Errors

These data have been tabulated and analysed by several other characteristics as reported in the census, such as age, sex, race, relationship to head of household, and educational attainment, which are also subject to response error. However, for this analysis it was assumed that these characteristics were error free. The purpose of this analysis is to evaluate how the errors associated with a specific characteristic are distributed with respect to these other characteristics. No attempt was made to estimate the joint effect of errors in reporting the specific characteristics and in reporting the other characteristics. As a result, the estimated response error measures do not specifically

indicate the quality of the published data when cross-classified by these other characteristics.

Applicability to Small-Area Data

The response error measures are applicable to census statistics at the national level and, at most can be only approximately applied to statistics for small areas. For small areas, the correlation between response errors due to the enumerators is likely to dominate as a source of variability. The effect of these correlations is not included in the data presented here. Data on the effects of enumerators on small-area data will be presented in a later report in this PHC(E) series.

Noninterviews and Matching Problems

Of the reinterview sample of addresses designated to receive a 5-percent questionnaire, only 69 percent were found to be occupied at the time of the census and were matched to a census questionnaire. About 28 percent of this loss is accounted for by units which were vacant in the census, enumerated on the incorrect sample questionnaire in the census, or deleted from the census. An additional 30 percent of the loss is accounted for by units which were not reinterviewed, were vacant at the time of the reinterview, were demolished since the census, went to nonresidential status, or could not be located by the interviewer. The remaining 42 percent of the loss is accounted for by problems encountered in matching to a census questionnaire; that is, nonmatches due to households which moved between the census and reinterview dates and nonmatches resulting from the failure to obtain the census questionnaire for the specific address. (See table CC.)

Of the reinterview sample of addresses designated to receive a 15-percent questionnaire, only 72 percent were found to be occupied at the time of the census and were matched to a census questionnaire. For the sample of 15-percent addresses the proportions of the losses accounted for by the various problems indicated above were 29, 31, and 40 percent, respectively. (See table CC.)

The losses accounted for by units vacant in the census, enumerated on the incorrect sample questionnaire in the census, or deleted from the census were expected as the sample was selected from a census file containing both occupied and vacant units and units which were subsequently deleted from the census address registers. The match rates increase to 75 percent and 79 percent, respectively, if these losses are discounted.

For both reinterview samples, about 95 percent of the sample persons in households that were matched to a census questionnaire were interviewed in the reinterview and were listed on the census questionnaire with their sample population pages completed. About 1 percent were not reinterviewed. The remaining 4 percent were either not listed on the census

questionnaire or were listed but did not complete the page containing the sample population questions. (See table DD.)

The response error measures do *not* reflect the effects of the noninterview and matching problems on the data. The levels of

the measures will be affected if the distribution of the response errors associated with persons excluded from the analysis, as a result of these problems, is substantially different from the distribution of the errors associated with the persons included in the analysis.

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**Table 1. Comparison of Census and Reinterview Responses on Spanish Origin or Descent,
by Selected Demographic Characteristics**

(Data shown as numbers of matched sample persons in the 5-percent reinterview sample; see table DD, row 6, column 2)

Characteristic	Total matched persons	Reported of Spanish origin or descent			
		Census—yes Reinterview—yes	Census—no Reinterview—yes	Census—yes Reinterview—no	Census—no Reinterview—no
Total matched persons.....	19,259	280	89	60	8,830
Spanish surname.....	399	209	18	4	168
No Spanish surname.....	8,850	68	71	56	8,655
Native born.....	8,739	198	86	55	8,400
Foreign born.....	470	78	3	4	385
Age 0 to 19.....	3,259	115	52	21	3,071
Age 20 to 44.....	2,829	106	21	20	2,682
Age 45 or older.....	3,149	59	16	19	3,055
Male.....	4,458	143	43	30	4,242
Female.....	4,750	136	46	29	4,539
Son or daughter of head.....	3,104	101	48	16	2,939
Not son or daughter of head...	6,128	177	41	44	5,866
White.....	8,125	250	75	44	7,756
Negro.....	879	2	10	16	851
Other races.....	134	20	4	-	110
Southwest ²	1,530	187	36	5	1,302
East.....	3,413	67	27	24	3,295
Midwest.....	1,815	17	1	17	1,780
Balance of U.S.....	2,501	9	25	14	2,453
Conventional census area.....	3,291	62	25	22	3,182
Mail census area.....	5,968	218	64	38	5,648

- Represents zero.

¹Does not include 1,556 persons whose origin or descent was not reported in the census and/or reinterview.

²Southwest: Arizona, California, Colorado, New Mexico, Texas. East: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Washington, D.C., Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida. Midwest: Illinois, Indiana, Ohio, Michigan. Balance of U.S.: All other states not mentioned above.

Table 2. Comparison of Census and Reinterview Responses on Mother Tongue, by Selected Demographic Characteristics

(Data shown as numbers of matched sample persons in the 15-percent reinterview sample; see table D0, row 11, column 2)

Characteristic	Total matched persons	Reinterview																English only spoken in childhood home	Did not respond to question on foreign language											
		Reported foreign language spoken in childhood home and degree of foreign language usage																												
		1		2		3		4		5		6		7		8														
		Foreign language spoken only		Foreign language spoken dominantly—English also spoken		Foreign language spoken equally with English		English spoken pre-dominantly—foreign language frequently		English spoken pre-dominantly—foreign language occasionally		English spoken pre-dominantly—foreign language seldom		Foreign language spoken by sample person		Unknown or not reported														
		English only	Not reported	English only	Not reported	English only	Not reported	English only	Not reported	English only	Not reported	English only	Not reported	English only	Not reported	English only	Not reported													
NATIVITY	Total matched persons.....	11,332	399	13	2	410	35	3	38	3	276	74	3	72	23	21	19	6	411	376	15	1	1	28	8,904	108	50	41	-	
	Native of native parentage.....	9,325	30	3	-	72	23	2	12	2	64	44	2	30	13	17	15	3	217	287	4	-	-	21	8,294	93	37	40	-	
	Native of foreign or mixed parentage.....	1,373	72	3	-	253	11	23	1	182	24	1	39	8	3	3	3	2	182	82	10	1	1	6	451	3	11	1	-	
	Foreign born.....	1,574	296	7	1	85	1	1	3	2	26	6	1	3	2	1	1	1	11	4	1	-	1	1	121	1	2	-	-	
	Not reported.....	60	1	-	1	-	4	-	-	-	-	-	-	-	-	-	-	-	1	3	1	-	-	-	-	38	11	-	-	-
AGE	0 to 4 years.....	912	4	-	11	-	1	2	-	-	10	3	-	5	1	1	-	1	16	1	2	-	-	3	822	11	3	5	-	
	5 to 9 years.....	1,180	2	-	17	1	-	2	-	-	19	5	-	1	1	6	4	-	13	15	-	3	-	2	1,057	14	-	12	-	
	10 to 14 years.....	1,274	6	-	22	1	-	3	-	1	14	12	-	1	3	2	2	-	11	19	-	1	-	2	1,147	11	9	5	-	
	15 to 19 years.....	1,080	10	-	14	4	-	3	-	2	8	-	-	2	1	1	3	-	22	29	-	-	-	1	937	11	9	5	-	
	20 to 24 years.....	620	8	-	14	2	-	-	-	-	12	5	-	3	-	1	3	-	26	27	1	-	-	1	510	6	1	2	-	
	25 to 29 years.....	635	11	-	13	1	2	1	2	-	8	2	-	4	2	2	2	-	33	32	-	2	-	2	516	3	2	-	-	
	30 to 34 years.....	661	29	1	20	7	-	1	1	1	14	3	-	1	2	1	2	-	34	29	-	2	-	1	501	8	5	-	-	
	35 to 39 years.....	619	28	-	28	3	-	2	1	-	22	7	-	4	1	1	2	-	43	43	2	2	-	2	525	1	3	2	-	
	40 to 44 years.....	757	41	1	35	1	-	9	-	2	27	7	-	6	2	1	2	-	43	34	-	-	-	3	526	5	4	1	-	
	45 to 49 years.....	758	39	-	46	4	-	2	-	3	29	6	1	7	5	-	2	1	26	25	1	-	-	4	477	6	2	1	-	
	50 to 54 years.....	669	28	2	46	1	2	-	2	-	23	4	2	12	3	-	1	-	41	20	-	2	-	2	390	6	6	1	-	
	55 to 59 years.....	596	29	1	47	3	1	2	-	-	21	7	-	3	-	1	-	-	22	20	-	-	-	-	332	12	4	1	-	
	60 to 64 years.....	502	39	-	35	2	-	3	-	-	32	8	-	10	2	-	-	-	35	31	1	1	1	5	699	7	4	1	-	
	65 or more years.....	1,042	125	7	2	62	5	-	-	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-	20	3	-	1	-	
	Not reported.....	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SEX	Male.....	5,509	191	8	-	205	14	-	21	1	135	36	1	41	11	10	8	-	209	167	3	7	1	-	14	4,326	51	27	19	-
	Female.....	5,747	206	5	2	202	20	2	17	2	139	38	2	31	11	10	1	-	202	204	3	8	-	1	14	4,519	56	23	22	-
	Not reported.....	76	2	-	3	1	-	-	-	-	2	-	-	-	-	-	-	-	-	5	-	-	-	-	-	59	1	-	-	-
	Not reported.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

(Data shown as numbers of matched sample persons in the 15-percent reinterview sample; see table DD, row 11, column 2)

- Represents zero.

Table 3. Main Foreign Language Spoken According to Census and Reinterview, Using Language Usage Levels 1 through 7 as Reinterview Definition of Foreign Mother Tongue

(Data shown as numbers of matched sample persons in the 15-percent reinterview sample; see table DD, row 11, column 2)

Reinterview classification	Census classification											
	Total matched persons	Language not reported in census	Language reported in census									
			Total reported	English only spoken	Foreign language spoken							
					Total foreign language spoken	French	German	Italian	Polish	Spanish	Yiddish	All other
Total matched persons.....	11,332	123	11,209	9,489	1,720	137	370	228	162	274	94	455
Language not reported in reinterview..	91	-	91	41	50	6	16	5	1	9	5	8
Language reported in reinterview.....	11,241	123	11,118	9,448	1,670	131	354	223	161	265	89	447
English only spoken.....	9,040	108	8,932	8,904	28	9	9	-	-	5	2	3
Foreign language spoken.....	2,201	15	2,186	544	1,642	122	345	223	161	260	87	444
French.....	165	1	164	48	116	116	-	-	-	-	-	-
German.....	533	6	527	177	350	3	337	-	4	-	1	5
Italian.....	285	1	284	61	223	-	-	222	-	1	-	-
Polish.....	191	1	190	31	159	-	3	-	152	-	-	4
Spanish.....	311	-	311	52	259	-	-	-	-	258	1	-
Yiddish.....	118	1	117	29	88	-	-	1	-	-	81	6
All other.....	598	5	593	146	447	3	5	-	5	1	4	429

- Represents zero.

Table 4. Main Foreign Language Spoken According to Census and Reinterview, Using Language Usage Levels 1 through 4 as Reinterview Definition of Foreign Mother Tongue

(Data shown as numbers of matched sample persons in the 15-percent reinterview sample; see table DD, row 11, column 2)

Reinterview classification	Census classification											
	Total matched persons	Language not reported in census	Language reported in census									
			Total reported	English only spoken	Foreign language spoken							
Total foreign language spoken	French	German			Italian	Polish	Spanish	Yiddish	All other			
Total matched persons.....	11,332	123	11,209	9,489	1,720	137	370	228	162	274	94	455
Language not reported in reinterview..	108	1	107	42	65	6	17	9	4	12	5	12
Language reported in reinterview.....	11,224	122	11,102	9,447	1,655	131	353	219	158	262	89	443
English only spoken.....	9,968	114	9,854	9,322	532	62	169	71	41	40	29	120
Foreign language spoken.....	1,256	8	1,248	125	1,123	69	184	148	117	222	60	323
French.....	73	1	72	8	64	64	-	-	-	-	-	-
German.....	221	3	218	27	191	2	181	-	4	-	1	3
Italian.....	162	-	162	13	149	-	-	148	-	1	-	-
Polish.....	120	1	119	7	112	-	-	-	110	-	-	2
Spanish.....	240	-	240	20	220	-	-	-	-	220	-	-
Yiddish.....	73	-	73	11	62	-	-	-	-	-	57	5
All other.....	367	3	364	39	325	3	3	-	3	1	2	313

- Represents zero.

Table 5. Comparison of Census and Reinterview Responses on Completion of a Vocational Training Program

(Data shown as numbers of matched sample persons 14 years old or older in the 5-percent reinterview sample; see table DD, row 7, column 3)

Reinterview classification	Total matched persons	Census classification			
		Did not respond to question on completion of vocational training program	Responded to question on completion of vocational training program		
			Total	Completed a vocational training program	Did not complete a vocational training program
Total matched persons.....	7,858	206	7,652	1,455	6,197
Did not respond to question on completion of vocational training program.....	87	2	85	72	13
Responded to question on completion of vocational training program.....	7,771	204	² 7,567	1,383	6,184
Completed a vocational training program ¹	1,441	26	1,415	859	556
Without reconciliation.....	1,344	26	1,318	762	556
With reconciliation.....	97	-	97	97	-
Did not complete a vocational training program.....	6,330	178	6,152	524	<u>5,628</u>

- Represents zero.

¹Includes persons completing any training program which might be considered vocational other than those types of programs which were not to be reported as vocational according to the census instructions.

²Of these, 7,274 were also matched to a person record on the final 1970 census sample detail file and form the basis for the tabulations by years of school completed, labor force status, occupation, and earnings in 1969 in table 7.

Table 6. Comparison of Census and Reinterview Responses on Completion of a Vocational Training Program, by Alternative Reinterview Definitions of Vocational Training

(Data shown as numbers of matched sample persons 14 years old and older in the 5-percent reinterview sample who reported on completion of a vocational training program in both census and reinterview; see table 5, row 3, column 3)

Reinterview definition of vocational training ¹	Total matched persons	Not reported in reinterview	Census response evaluated relative to alternative reinterview definitions of vocational training			
			Correctly reported as completing a vocational training program	Erroneously reported as not completing a vocational training program	Erroneously reported as completing a vocational training program	Correctly reported as not completing a vocational training program
No program qualifications except those indicated in census instructions ²	7,567	(X)	859	556	524	5,628
Man-hours in program.....	7,567	108	715	404	604	5,736
Usefulness of program.....	7,567	18	410	208	962	5,969
Where or how program received.....	7,567	97	452	184	896	5,938

(X) Not applicable.

¹See table O for a description of these definitions.

²Figures in table 5 correspond with those given for this definition.

Table 7. Comparison of Census and Reinterview Responses on Completion of a Vocational Training Program, by Selected Demographic Characteristics

(Data shown as numbers of matched sample persons 14 years old and over in the 5-percent reinterview sample who reported on completion of vocational training in both census and reinterview; see table 5, row 3, column 3)

Characteristic	Total matched persons	Census response evaluated			
		Correctly reported as completing a vocational training program	Erroneously reported as not completing a vocational training program	Erroneously reported as completing a vocational training program	Correctly reported as not completing a vocational training program
AGE					
Total matched persons.....	7,567	859	556	524	5,628
14 to 17 years.....	851	2	4	6	839
18 and 19 years.....	291	10	16	18	247
20 to 24 years.....	575	72	49	52	402
25 to 34 years.....	1,225	169	104	116	836
35 to 44 years.....	1,239	200	116	101	822
45 to 54 years.....	1,315	235	125	108	847
55 to 64 years.....	1,011	116	82	69	744
65 years and over.....	1,041	55	58	52	876
Age not reported.....	19	-	2	2	15
Total males.....	3,524	409	258	324	2,533
14 to 17 years.....	430	-	4	2	424
18 and 19 years.....	136	2	5	9	120
20 to 24 years.....	250	21	20	34	175
25 to 34 years.....	578	78	51	71	378
35 to 44 years.....	592	109	54	73	356
45 to 54 years.....	638	130	58	57	393
55 to 64 years.....	473	48	41	46	338
65 years and over.....	420	21	25	30	344
Age not reported.....	7	-	-	2	5
Total females.....	3,993	449	292	199	3,053
14 to 17 years.....	412	2	-	4	406
18 and 19 years.....	154	8	10	9	127
20 to 24 years.....	322	51	28	18	225
25 to 34 years.....	640	90	53	45	452
35 to 44 years.....	642	91	62	27	462
45 to 54 years.....	672	105	65	51	451
55 to 64 years.....	533	68	41	23	401
65 years and over.....	612	34	33	22	523
Age not reported.....	6	-	-	-	6
Total, sex not reported.....	50	-	-	-	-
RACE					
Total matched persons.....	7,567	859	556	524	5,628
White.....	6,629	771	488	467	4,903
Negro.....	745	63	44	47	591
Other.....	90	13	9	5	63
Race not reported.....	103	12	15	5	71
YEARS OF SCHOOL COMPLETED					
Total matched persons.....	7,274	828	535	503	5,408
Elementary: 0 to 4 years.....	280	3	5	4	268
5 to 7 years.....	688	19	32	19	618
8 years.....	921	46	37	43	795
High school: 1 to 3 years.....	1,759	129	93	89	1,448
4 years.....	2,181	414	217	205	1,345
College: 1 to 3 years.....	819	165	104	84	466
4 years or more.....	626	52	47	59	468

See footnotes at end of table.

Table 7. Comparison of Census and Reinterview Responses on Completion of a Vocational Training Program, by Selected Demographic Characteristics—Continued

(Data shown as numbers of matched sample persons 14 years old and over in the 5-percent reinterview sample who reported on completion of vocational training in both census and reinterview; see table 5, row 3, column 3)

Characteristic	Total matched persons	Census response evaluated			
		Correctly reported as completing a vocational training program	Erroneously reported as not completing a vocational training program	Erroneously reported as completing a vocational training program	Correctly reported as not completing a vocational training program
EMPLOYMENT STATUS					
Total males, 14 to 24 years...	783	22	28	43	690
Civilian labor force.....	403	18	18	33	334
Employed, at work.....	349	16	16	30	287
Employed, not at work.....	17	-	1	2	14
Unemployed.....	37	2	1	1	33
Armed Forces, at work.....	6	2	2	1	1
Armed Forces, on leave.....	-	-	-	-	-
Not in labor force.....	374	2	8	9	355
Total females, 14 to 24 years.	851	59	37	30	725
Civilian labor force.....	317	45	26	21	225
Employed, at work.....	283	39	22	18	204
Employed, not at work.....	6	2	2	-	2
Unemployed.....	28	4	2	3	19
Armed Forces, at work.....	2	1	-	-	1
Armed Forces, on leave.....	-	-	-	-	-
Not in labor force.....	532	13	11	9	499
Total males, 25 to 64 years...	2,194	352	197	236	1,409
Civilian labor force.....	2,017	333	187	225	1,272
Employed, at work.....	1,910	311	180	213	1,206
Employed, not at work.....	50	12	1	4	33
Unemployed.....	57	10	6	8	33
Armed Forces, at work.....	20	2	-	3	15
Armed Forces, on leave.....	-	-	-	-	-
Not in labor force.....	157	17	10	8	122
Total females, 25 to 64 years.	2,388	340	213	140	1,695
Civilian labor force.....	1,138	216	121	73	728
Employed, at work.....	1,034	206	116	61	651
Employed, not at work.....	45	3	3	1	38
Unemployed.....	59	7	2	11	39
Armed Forces, at work.....	-	-	-	-	-
Armed Forces, on leave.....	-	-	-	-	-
Not in labor force.....	1,250	124	92	67	967
OCCUPATION OF THE EMPLOYED					
Total males, 14 to 64 years...	2,667	368	217	272	1,810
Professional, technical, and kindred workers.....	324	52	24	42	206
Managers and administrators except farm.....	262	43	26	26	167
Sales workers.....	194	24	19	16	135
Clerical and kindred workers.....	236	25	15	27	169
Craftsmen and kindred workers.....	556	123	51	86	296
Operatives except transportation..	371	44	19	37	271
Transportation equipment operatives.....	155	6	18	4	127
Laborers except farm.....	221	17	8	15	181
Farmers and farm managers.....	91	7	10	5	69
Farm laborers, farm foremen.....	55	3	6	3	43
Service workers except private household.....	199	24	21	11	143
Private household workers.....	3	-	-	-	3

See footnotes at end of table.

Table 7. Comparison of Census and Reinterview Responses on Completion of a Vocational Training Program, by Selected Demographic Characteristics—Continued

(Data shown as numbers of matched sample persons 14 years old and over in the 5-percent reinterview sample who reported on completion of vocational training in both census and reinterview; see table 5, row 3, column 3)

Characteristic	Total matched persons	Census response evaluated			
		Correctly reported as completing a vocational training program	Erroneously reported as not completing a vocational training program	Erroneously reported as completing a vocational training program	Correctly reported as not completing a vocational training program
OCCUPATION OF THE EMPLOYED --Con.					
Total females, 14 to 64 years.	2,193	345	199	140	1,509
Professional, technical, and kindred workers.....	291	60	25	35	171
Managers and administrators except farm.....	65	15	6	6	38
Sales workers.....	183	15	17	11	140
Clerical and kindred workers.....	772	152	97	52	471
Craftsmen and kindred workers.....	40	5	-	2	33
Operatives except transportation..	319	24	14	10	271
Transportation equipment operatives.....	9	-	2	-	7
Laborers except farm.....	16	-	-	-	16
Farmers and farm managers.....	5	-	1	-	4
Farm laborers, farm foremen.....	35	-	2	2	31
Service workers except private household.....	365	70	32	20	243
Private household workers.....	93	4	3	2	84
EARNINGS OF PERSONS IN 1969					
Total males, 14 to 64 years...	2,984	374	225	279	2,106
Without earnings.....	634	43	30	34	527
With earnings.....	2,350	331	195	245	1,579
Under \$1,000.....	220	4	6	6	204
\$1,000 to \$1,999.....	142	15	6	8	113
\$2,000 to \$2,999.....	100	6	7	9	78
\$3,000 to \$4,999.....	217	16	17	17	167
\$5,000 to \$5,999.....	166	20	13	10	123
\$6,000 to \$6,999.....	202	26	20	23	133
\$7,000 to \$7,999.....	224	44	18	29	133
\$8,000 to \$8,999.....	226	32	31	35	128
\$9,000 to \$9,999.....	173	33	15	23	102
\$10,000 to \$14,999.....	483	97	40	65	281
\$15,000 and over.....	197	38	22	20	117
Total females, 14 to 64 years.	3,247	399	250	170	2,428
Without earnings.....	1,615	135	96	65	1,319
With earnings.....	1,632	264	154	105	1,109
Under \$1,000.....	396	28	33	14	321
\$1,000 to \$1,999.....	200	27	9	11	153
\$2,000 to \$2,999.....	191	25	26	9	131
\$3,000 to \$4,999.....	419	81	44	24	270
\$5,000 to \$5,999.....	151	36	17	14	84
\$6,000 to \$6,999.....	103	30	12	6	55
\$7,000 to \$7,999.....	70	19	5	8	38
\$8,000 to \$8,999.....	38	8	3	6	21
\$9,000 to \$9,999.....	27	7	1	8	11
\$10,000 to \$14,999.....	33	3	4	4	22
\$15,000 and over.....	4	-	-	1	3

- Represent zero.

Table 8. Comparison of Field of Vocational Training Reports Before Reconciliation for Field of Training

(Data shown as numbers of matched sample persons 14 years old and older in the 5-percent reinterview sample reporting completion of a vocational training program in both census and reinterview; see table 5, row 5, column 4)

Reinterview classification	Persons reporting completion of a vocational training program in census and reinterview	Census classification							
		Field not reported	Field reported						
			Total	Business, office work	Nursing, other health fields	Trades and crafts	Engineer and science technician, draftsman	Agriculture, home economics	Other Fields
Persons reporting completion of a vocational training program in both census and reinterview.....	762	1	761	263	116	313	40	21	8
Field not reported.....	2	-	2	1	-	1	-	-	-
Field reported.....	760	1	759	262	116	312	40	21	8
Business, office work.....	264	-	264	241	5	10	3	3	2
Nursing, other health fields.....	107	-	107	2	102	2	-	1	-
Trades and crafts.....	329	-	329	12	3	290	20	2	2
Engineer and science technician, draftsman.....	32	-	32	2	4	9	17	-	-
Agriculture, home economics.....	20	1	19	1	2	1	-	15	-
Other fields.....	8	-	8	4	-	-	-	-	4

- Represents zero.

Table 9. Comparison of Field of Vocational Training Reports After Reconciliation for Field of Training

(Data shown as numbers of matched sample persons 14 years old and older in the 5-percent reinterview sample reporting completion of a vocational training program in both census and reinterview; see table 5, row 5, column 4)

Reinterview classification	Persons reporting completion of a vocational training program in census and reinterview	Census classification							
		Field not reported	Field reported						
			Total	Business, office work	Nursing, other health fields	Trades and crafts	Engineer and science technician, draftsman	Agriculture, home economics	Other fields
Persons reporting completion of a vocational training program in both census and reinterview.....	762	1	761	263	116	313	40	21	8
Field not reported.....	22	1	21	4	3	5	6	-	3
Field reported.....	740	-	740	259	113	308	34	21	5
Business, office work.....	259	-	259	247	3	5	1	2	1
Nursing, other health fields.....	108	-	108	2	105	-	-	1	-
Trades and crafts.....	311	-	311	5	1	295	9	1	-
Engineer and science technician, draftsman.....	36	-	36	1	4	7	24	-	-
Agriculture, home economics.....	19	-	19	1	-	1	-	17	-
Other fields.....	7	-	7	3	-	-	-	-	4

- Represents zero.

Table 10. Comparison of Field of Vocational Training Reports for Persons Reconciled As Completing a Vocational Training Program

(Data shown as numbers of matched sample persons 14 years old and older in the 5-percent reinterview sample reporting completion of a vocational training program in both census and reinterview after reconciliation; see table 5, row 6, column 4)

Reinterview classification	Persons reporting completion of a vocational training program in census and reconciliation	Census classification						
		Field not reported	Field reported					Other fields
			Total	Business	Nursing	Trades	Engineer and science		Agriculture
Persons reporting completion of a vocational training program in both census and reconciliation.....	97	-	97	45	5	28	7	5
	1	-	1	1	-	-	-	-
	96	-	96	44	5	28	7	5
	46	-	46	44	-	-	1	1
Business.....	6	-	6	-	5	-	-	-
Nursing.....	28	-	28	-	-	27	1	-
Trades.....	6	-	6	-	-	1	5	-
Engineer and science.....	6	-	6	-	-	-	-	-
Agriculture.....	4	-	4	-	-	-	-	4
Other fields.....								
- Represents zero.								

Table 11. Comparison of Census and Reinterview Responses on Completion of a Vocational Training Program and Main Field of Training

(Data shown as numbers of matched sample persons 14 years old or older in the 5-percent reinterview sample, after reconciliation for vocational training and field of training; see table DD, row 7, column 3)

Reinterview classification	Total matched persons	Did not respond to question on completion of vocational training program	Census classification									Reported not completing vocational training program
			Reported completion of vocational training program							Agriculture	Other fields	
			Total	Did not report field of training	Reported field of training							
					Total	Business	Nursing	Trades	Engineer and science			
Total matched persons.....	7,858	206	1,455	4	1,451	490	181	588	101	57	34	6,197
Did not respond to question on completion of vocational training program.....	87	2	72	-	72	25	10	30	5	1	1	13
Reported completion of vocational training program.....	1,441	26	859	1	858	308	121	341	47	28	13	556
Did not report field of training....	41	1	23	1	22	5	3	5	6	-	3	17
Reported field of training.....	1,400	25	836	-	836	303	118	336	41	28	10	539
Business.....	522	7	305	-	305	291	3	5	2	3	1	210
Nursing.....	185	2	114	-	114	2	110	-	-	1	1	69
Trades.....	566	15	339	-	339	5	1	322	10	1	-	212
Engineer and science.....	68	-	42	-	42	1	4	8	29	-	-	26
Agriculture.....	44	1	25	-	25	1	-	1	-	23	-	18
Other fields.....	15	-	11	-	11	3	-	-	-	-	8	4
Reported not completing a vocational training program.....	6,330	178	524	3	521	157	50	217	49	28	20	5,628
- Represents zero.												

Table 12. Comparison of Census and Reinterview Responses on Country of Birth and Citizenship, Total Persons

(Data shown as numbers of matched sample persons in the 5-percent reinterview sample; see table DD, row 6, column 2)

Reinterview classification	Total matched persons	Census classification						
		Country of birth and/or citizenship not reported	Country of birth and citizenship reported					
			Total	Born in U.S.	Foreign born			
					Total	Born abroad of American parents	Naturalized	Alien
Total matched persons.....	10,815	83	10,732	10,209	523	39	298	186
Country of birth and/or citizenship not reported.....	35	1	34	29	5	1	1	3
Country of birth and/or citizenship reported.....	10,780	82	10,698	10,180	518	38	297	183
Born in U.S.....	10,255	72	10,183	<u>10,164</u>	19	5	11	3
Foreign born.....	525	10	515	16	499	33	286	180
Born abroad of American parents.....	36	1	35	-	35	<u>28</u>	7	-
Naturalized.....	290	3	287	14	273	5	<u>263</u>	5
Alien.....	199	6	193	2	191	-	16	<u>175</u>

- Represents zero.

Table 13. Comparison of Census and Reinterview Responses on Country of Birth of Individual

(Data shown as numbers of matched sample persons in the 15-percent reinterview sample; see table DD, row 11, column 2)

Reinterview classification	Total matched persons	Census classification			
		Country of birth not reported	Country of birth reported		
			Total	Born in U.S.	Foreign born
Total matched persons.....	11,332	60	11,272	10,697	575
Country of birth not reported.....	29	-	29	18	11
Country of birth reported.....	11,303	60	11,243	10,679	564
Born in U.S.....	10,730	57	10,673	<u>10,669</u>	4
Foreign born.....	573	3	570	10	<u>560</u>

- Represents zero.

Table 14. Comparison of Census and Reinterview Responses on Country of Birth of Father, by Country of Birth of Individual

(Data shown as numbers of matched sample persons in the 15-percent reinterview sample; see table DD, row 11, column 2)

Census classification																
Total persons				Individual born in U.S.				Individual foreign born				Country of birth of individual not reported				
Total	Country of birth of father not reported	Country of birth of father reported			Country of birth of father not reported	Country of birth of father reported			Country of birth of father not reported	Country of birth of father reported			Total	Born in U.S.	Foreign born	
		Total	Born in U.S.	Foreign born		Total	Born in U.S.	Foreign born		Total	Born in U.S.	Foreign born				
11,332	46	11,286	9,637	1,649	28	10,670	9,534	1,136	4	570	61	509	14	46	42	4
Total matched persons.....																
73	2	71	51	20	2	65	48	17	-	6	3	3	-	-	-	-
Country of birth of father not reported.....																
11,259	44	11,215	9,586	1,629	26	10,605	9,486	1,119	4	564	58	506	14	46	42	4
9,566	29	9,537	9,524	13	18	9,440	9,427	13	-	55	55	-	11	42	42	-
1,693	15	1,678	<u>62</u>	<u>1,616</u>	8	1,165	59	<u>1,106</u>	4	509	<u>3</u>	<u>506</u>	3	4	-	4
Country of birth of father reported.....																
Born in U.S.....																
Foreign born.....																

- Represents zero.

Table 15. Comparison of Census and Reinterview Responses on Country of Birth of Mother, by Country of Birth of Individual

(Data shown as numbers of matched sample persons in the 15-percent reinterview sample; see table DD, column 2, row 11)

Reinterview classification	Census classification																
	Total persons				Individual born in U.S.				Individual foreign born						Country of birth of individual not reported		
	Total	Country of birth of mother not reported	Country of birth of mother reported		Country of birth of mother not reported	Country of birth of mother reported		Country of birth of mother not reported	Country of birth of mother reported		Country of birth of mother not reported	Country of birth of mother reported		Total	Foreign born		
			Total	Born in U.S.		Total	Born in U.S.		Total	Born in U.S.		Total	Born in U.S.				
Total matched persons.....	11,332	61	11,271	9,747	1,524	42	10,656	9,658	998	4	570	50	520	15	45	39	6
Country of birth of mother not reported.....	70	1	169	49	20	1	62	46	16	-	7	3	4	-	-	-	-
Country of birth of mother reported.....	11,262	60	11,202	9,698	1,504	41	10,594	9,612	982	4	563	47	516	15	45	39	6
Born in U.S.....	9,724	47	9,677	9,653	24	34	9,588	9,569	19	-	50	45	5	13	39	39	-
Foreign born.....	1,538	13	1,525	45	1,480	7	1,006	43	963	4	513	2	511	2	6	-	4

- Represents zero.

Table 16. Comparison of Census and Reinterview Responses on Year of Immigration, Total Persons

(Data shown as numbers of matched sample persons in the 5-percent reinterview sample; see table DD, row 6, column 2)

Reinterview classification	Total matched persons	Census classification													
		Country of birth reported													
		Country of birth not reported	Born in U.S.	Born abroad of Amer- ican parents	Year not reported	All other foreign born									Before 1915
						Total	1965 to 1970	1960 to 1964	1955 to 1959	1950 to 1954	1945 to 1949	1935 to 1944	1925 to 1934	1915 to 1924	
Total matched persons.....	10,815	83	10,209	39	7	477	98	58	52	33	25	16	41	63	91
Country of birth not reported....	35	1	29	1	-	4	1	1	1	-	-	-	-	-	1
Country of birth reported.....	10,780	82	10,180	38	7	473	97	57	51	33	25	16	41	63	90
Born in U.S.....	10,255	72	10,164	5	2	12	1	1	5	1	2	-	1	1	-
Born abroad of American Parents.	36	1	-	28	-	7	2	-	-	-	-	-	1	2	2
All other foreign born.....	489	9	16	5	5	454	94	56	46	32	23	16	39	60	88
Year not reported.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Year reported.....	489	9	16	5	5	454	94	56	46	32	23	16	39	60	88
1965 to 1970.....	112	4	6	1	1	100	91	3	3	1	1	-	1	-	-
1960 to 1964.....	62	1	1	-	-	60	3	49	3	3	1	-	-	1	-
1955 to 1959.....	43	-	-	1	1	41	-	3	38	23	1	-	-	-	-
1950 to 1954.....	26	1	-	1	-	25	-	-	1	23	1	-	-	-	-
1945 to 1949.....	28	-	-	2	-	26	-	-	-	4	20	-	1	1	1
1935 to 1944.....	17	-	-	-	-	17	-	1	-	1	-	14	1	-	-
1925 to 1934.....	38	-	1	-	-	37	-	-	-	-	-	2	33	1	1
1915 to 1924.....	70	1	3	-	2	64	-	-	1	-	-	-	3	53	7
Before 1915.....	93	2	5	1	1	84	-	-	-	-	-	-	-	4	80

- Represents zero.

Table 17. Comparison of Census and Reinterview Responses on Year Moved Into Present House, by Relationship to Head of Household

(Data shown as numbers of matched sample persons in the 15-percent reinterview sample; see table DD, row 11, column 2)

Reinterview classification	Total matched persons	Census classification									
		Not reported	Reported								
			Total	1969 or 1970	1968	1967	1965 or 1966	1960 to 1964	1950 to 1959	1949 or earlier	Always here
Total matched persons.....	11,332	151	11,181	1,934	1,129	936	1,401	2,123	1,939	993	726
Not reported.....	371	9	362	62	36	31	40	81	49	45	18
Reported.....	10,961	142	10,819	1,872	1,093	905	1,361	2,042	1,890	948	708
1969 or 1970.....	1,785	23	1,762	<u>1,572</u>	69	9	41	20	19	8	24
1968.....	1,029	9	1,020	79	<u>800</u>	81	26	16	9	4	5
1967.....	804	9	795	10	97	<u>571</u>	84	23	3	2	5
1965 or 1966.....	1,278	8	1,270	13	15	151	<u>932</u>	115	12	4	28
1960 to 1964.....	1,818	10	1,808	16	5	16	124	<u>1,530</u>	78	19	20
1950 to 1959.....	1,693	29	1,664	11	3	2	12	<u>73</u>	<u>1,427</u>	90	46
1949 or earlier.....	932	15	917	3	-	2	6	6	<u>47</u>	<u>787</u>	66
Always here.....	1,622	39	1,583	168	104	73	136	259	295	34	<u>514</u>
HEAD OF HOUSEHOLD											
Total persons.....	3,533	25	3,508	575	337	269	427	597	689	533	81
Not reported.....	130	1	129	24	13	10	14	22	20	24	2
Reported.....	3,403	24	3,379	551	324	259	413	575	669	509	79
1969 or 1970.....	569	5	564	<u>507</u>	25	2	14	5	5	4	2
1968.....	329	-	329	29	<u>256</u>	25	7	7	3	2	-
1967.....	251	1	250	3	32	<u>184</u>	20	6	1	2	2
1965 or 1966.....	410	1	409	2	7	<u>42</u>	<u>320</u>	32	2	-	4
1960 to 1964.....	587	3	584	4	2	4	<u>41</u>	<u>494</u>	26	10	3
1950 to 1959.....	712	7	705	4	2	2	8	<u>30</u>	<u>609</u>	45	5
1949 or earlier.....	510	7	503	1	-	-	3	1	22	<u>438</u>	38
Always here.....	35	-	35	1	-	-	-	-	1	8	<u>25</u>
WIFE OF HEAD											
Total persons.....	2,657	25	2,632	427	253	209	336	492	535	350	30
Not reported.....	93	2	1	20	7	5	11	20	11	15	2
Reported.....	2,564	23	2,541	407	246	204	325	472	524	335	28
1969 or 1970.....	408	3	405	<u>370</u>	14	1	8	6	3	2	1
1968.....	255	1	254	24	<u>204</u>	14	5	4	2	1	-
1967.....	206	2	204	2	25	<u>151</u>	20	4	2	-	-
1965 or 1966.....	322	-	322	3	1	35	<u>249</u>	27	3	2	2
1960 to 1964.....	478	3	475	3	1	2	<u>37</u>	<u>405</u>	19	7	1
1950 to 1959.....	552	8	544	3	1	-	3	<u>23</u>	<u>480</u>	33	1
1949 or earlier.....	334	6	328	1	-	1	3	3	15	<u>287</u>	18
Always here.....	9	-	9	1	-	-	-	-	-	3	<u>5</u>
SON OR DAUGHTER OF HEAD											
Total persons.....	4,485	85	4,400	760	486	396	562	940	634	64	558
Not reported.....	109	5	104	12	13	10	10	36	8	2	13
Reported.....	4,376	80	4,296	748	473	386	552	904	626	62	545
1969 or 1970.....	649	12	637	<u>558</u>	26	5	15	5	6	1	21
1968.....	386	3	383	24	<u>309</u>	26	12	4	2	1	5
1967.....	304	4	300	5	34	<u>207</u>	39	13	-	-	2
1965 or 1966.....	482	6	476	6	3	68	<u>323</u>	51	7	1	17
1960 to 1964.....	663	3	660	4	1	9	37	<u>568</u>	25	1	15
1950 to 1959.....	377	12	365	3	-	-	1	<u>16</u>	<u>301</u>	9	35
1949 or earlier.....	44	2	42	-	-	1	-	1	2	<u>31</u>	7
Always here.....	1,471	38	1,433	148	100	70	125	246	283	18	<u>443</u>
OTHER RELATED AND UNRELATED INDIVIDUALS											
Total persons.....	657	16	641	172	53	62	76	94	81	46	57
Not reported.....	39	1	38	6	3	6	5	3	10	4	1
Reported.....	618	15	603	166	50	56	71	91	71	42	56
1969 or 1970.....	159	3	156	<u>137</u>	4	1	4	5	5	1	-
1968.....	59	5	54	2	<u>31</u>	16	2	1	2	-	-
1967.....	43	2	41	-	6	<u>29</u>	5	-	-	-	1
1965 or 1966.....	64	1	63	2	4	6	<u>40</u>	5	-	1	5
1960 to 1964.....	90	1	89	5	1	1	9	<u>63</u>	8	1	1
1950 to 1959.....	52	2	50	1	-	-	-	4	<u>37</u>	3	5
1949 or earlier.....	44	-	44	1	-	-	-	1	8	<u>31</u>	3
Always here.....	107	1	106	18	4	3	11	13	11	<u>5</u>	<u>41</u>

- Represents zero.

Table 18. Comparison of Census and Reinterview Responses on Number of Children Ever Born, by Race and Age

(Data shown as numbers of matched sample persons in 5- and 15-percent reinterview samples, reported as ever-married females 14 to 64 years old in both census and reinterview; see table DD, column 3, rows 8 and 12)

Reinterview classification	Total matched persons	Census classification														
		Not reported	Reported													
			Total	None	1	2	3	4	5	6	7	8	9	10	11	12 or more
Total matched persons.....	5,396	72	5,324	749	909	1,328	969	600	357	181	113	43	29	20	10	16
Not reported.....	29	4	25	12	5	4	2	1	1	-	-	-	-	-	-	-
Reported.....	5,367	68	5,299	737	904	1,324	967	599	356	181	113	43	29	20	10	16
None.....	705	21	684	657	17	7	2	1	-	-	-	-	-	-	-	-
1.....	905	7	898	43	831	20	2	2	-	-	-	-	-	-	-	-
2.....	1,343	21	1,322	19	45	1,229	17	7	4	1	-	-	-	-	-	-
3.....	991	7	984	6	5	44	894	24	9	2	-	-	-	-	-	-
4.....	611	4	607	7	4	20	39	521	15	1	-	-	-	-	-	-
5.....	359	3	356	3	1	2	11	31	301	4	1	2	-	-	-	-
6.....	196	2	194	2	1	2	2	5	20	155	5	1	-	-	-	1
7.....	115	-	115	-	-	-	-	4	5	10	89	4	2	-	1	-
8.....	54	1	53	-	-	-	-	4	1	3	12	30	2	1	-	-
9.....	35	1	34	-	-	-	-	-	-	1	2	5	21	4	-	1
10.....	19	1	18	-	-	-	-	-	1	2	1	3	11	-	-	-
11.....	10	-	10	-	-	-	-	-	-	1	-	-	2	7	-	-
12 or more.....	24	-	24	-	-	-	-	-	1	2	2	-	1	2	2	14
RACE																
Total, white.....	4,747	60	4,687	636	793	1,227	878	529	307	150	91	33	17	10	8	8
Not reported.....	24	1	23	10	5	4	2	1	1	-	-	-	-	-	-	-
Reported.....	4,723	59	4,664	626	788	1,223	876	528	306	150	91	33	17	10	8	8
None.....	598	19	579	560	12	5	1	1	-	-	-	-	-	-	-	-
1.....	794	6	788	34	733	18	2	1	-	-	-	-	-	-	-	-
2.....	1,229	20	1,209	16	35	1,137	13	3	4	1	-	-	-	-	-	-
3.....	902	6	896	5	5	41	817	19	7	2	-	-	-	-	-	-
4.....	548	3	545	7	2	18	32	473	13	-	-	-	-	-	-	-
5.....	310	2	308	2	1	2	9	23	265	4	1	1	-	-	-	-
6.....	160	2	158	2	-	2	2	4	13	130	4	1	-	-	-	-
7.....	92	-	92	-	-	-	-	3	3	9	73	2	1	-	1	-
8.....	39	1	38	-	-	-	-	1	1	1	8	24	2	1	-	-
9.....	19	-	19	-	-	-	-	-	-	1	1	4	12	1	-	-
10.....	11	-	11	-	-	-	-	-	-	2	1	2	6	-	-	-
11.....	7	-	7	-	-	-	-	-	-	1	-	-	-	-	6	-
12 or more.....	14	-	14	-	-	-	-	-	-	1	2	-	-	2	1	8
Total, Negro.....	511	7	504	92	94	75	65	55	40	28	19	6	12	9	2	7
Not reported.....	2	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-
Reported.....	509	7	502	90	94	75	65	55	40	28	19	6	12	9	2	7
None.....	89	2	87	80	4	2	1	-	-	-	-	-	-	-	-	-
1.....	86	1	85	6	77	1	-	1	-	-	-	-	-	-	-	-
2.....	90	-	90	2	10	70	4	4	-	-	-	-	-	-	-	-
3.....	60	1	59	1	-	1	52	4	1	-	-	-	-	-	-	-
4.....	49	1	48	-	2	1	6	36	2	1	-	-	-	-	-	-
5.....	38	1	37	1	-	-	2	5	28	-	-	1	-	-	-	-
6.....	32	-	32	-	1	-	-	1	6	22	1	-	-	-	-	1
7.....	21	-	21	-	-	-	-	1	2	1	14	2	1	-	-	-
8.....	11	-	11	-	-	-	-	3	-	2	3	3	-	-	-	-
9.....	15	1	14	-	-	-	-	-	-	-	1	-	9	3	-	1
10.....	7	-	7	-	-	-	-	-	-	1	-	-	1	5	-	-
11.....	2	-	2	-	-	-	-	-	-	-	-	-	-	1	1	-
12 or more.....	9	-	9	-	-	-	-	-	1	1	-	-	1	-	1	5
Total, other races.....	63	-	63	8	15	12	14	10	1	-	-	3	-	-	-	-
Not reported.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reported.....	63	-	63	8	15	12	14	10	1	-	-	3	-	-	-	-
None.....	7	-	7	7	-	-	-	-	-	-	-	-	-	-	-	-
1.....	16	-	16	1	15	-	-	-	-	-	-	-	-	-	-	-
2.....	10	-	10	-	-	10	-	-	-	-	-	-	-	-	-	-
3.....	16	-	16	-	-	1	14	1	-	-	-	-	-	-	-	-
4.....	7	-	7	-	-	1	-	6	-	-	-	-	-	-	-	-
5.....	4	-	4	-	-	-	-	3	1	-	-	-	-	-	-	-
6.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.....	2	-	2	-	-	-	-	-	-	-	-	2	-	-	-	-
9.....	1	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-
10.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12 or more.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

See footnotes at end of table.

Table 18. Comparison of Census and Reinterview Responses on Number of Children Ever Born, by Race and Age—Continued

(Data shown as numbers of matched sample persons in 5- and 15-percent reinterview samples, reported as ever-married females 14 to 64 years old in both census and reinterview; see table DD, column 3, rows 8 and 12)

Reinterview classification	Total matched persons	Census classification														
		Not reported	Reported													
			Total	None	1	2	3	4	5	6	7	8	9	10	11	12 or more
AGE																
Total, 14 to 19 years.....	43	1	42	24	18	-	-	-	-	-	-	-	-	-	-	-
Not reported.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reported.....	43	1	42	24	18	-	-	-	-	-	-	-	-	-	-	-
None.....	22	-	22	<u>22</u>	-	-	-	-	-	-	-	-	-	-	-	-
1.....	20	-	20	<u>2</u>	<u>18</u>	-	-	-	-	-	-	-	-	-	-	-
2.....	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12 or more.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total, 20 to 44 years.....	2,135	24	2,111	223	301	507	456	291	157	85	37	25	13	9	2	5
Not reported.....	9	1	8	5	2	-	1	-	-	-	-	-	-	-	-	-
Reported.....	2,126	23	2,103	218	299	507	455	291	157	85	37	25	13	9	2	5
None.....	214	6	208	<u>200</u>	4	4	-	-	-	-	-	-	-	-	-	-
1.....	291	3	288	10	<u>274</u>	3	-	1	-	-	-	-	-	-	-	-
2.....	522	6	516	4	17	<u>478</u>	11	3	2	1	-	-	-	-	-	-
3.....	456	2	454	1	3	16	<u>421</u>	11	2	-	-	-	-	-	-	-
4.....	291	4	287	1	-	-	16	<u>256</u>	8	-	-	-	-	-	-	-
5.....	158	2	156	2	-	-	6	14	<u>132</u>	1	-	1	-	-	-	-
6.....	91	-	91	-	1	-	1	3	8	<u>76</u>	2	-	-	-	-	-
7.....	39	-	39	-	-	-	-	1	3	4	<u>29</u>	1	1	-	-	-
8.....	30	-	30	-	-	-	-	2	1	1	3	<u>22</u>	1	-	-	-
9.....	13	-	13	-	-	-	-	-	-	-	2	1	<u>9</u>	1	-	-
10.....	8	-	8	-	-	-	-	-	-	-	1	-	<u>1</u>	<u>6</u>	-	-
11.....	5	-	5	-	-	-	-	-	-	1	-	-	-	<u>2</u>	<u>2</u>	-
12 or more.....	8	-	8	-	-	-	-	-	1	1	-	-	1	-	-	<u>5</u>
Total, 45 to 64 years.....	2,319	40	2,279	331	383	585	393	228	156	78	65	18	14	10	8	10
Not reported.....	15	-	15	6	3	4	-	1	1	-	-	-	-	-	-	-
Reported.....	2,304	40	2,264	325	380	581	393	227	155	78	65	18	14	10	8	10
None.....	325	13	312	<u>297</u>	10	3	1	1	-	-	-	-	-	-	-	-
1.....	379	3	376	14	<u>344</u>	15	2	1	-	-	-	-	-	-	-	-
2.....	577	14	563	7	<u>20</u>	<u>528</u>	4	2	2	-	-	-	-	-	-	-
3.....	409	5	404	3	2	21	<u>362</u>	10	5	1	-	-	-	-	-	-
4.....	235	-	235	2	3	11	<u>20</u>	<u>193</u>	6	-	-	-	-	-	-	-
5.....	153	1	152	1	1	2	3	13	<u>128</u>	2	1	1	-	-	-	-
6.....	87	1	86	1	-	1	1	2	<u>12</u>	<u>65</u>	2	1	-	-	-	1
7.....	65	-	65	-	-	-	-	3	2	6	<u>50</u>	3	-	-	1	-
8.....	23	1	22	-	-	-	-	2	-	1	9	<u>8</u>	1	1	-	-
9.....	22	1	21	-	-	-	-	-	-	1	-	4	<u>12</u>	3	-	1
10.....	9	1	8	-	-	-	-	-	-	1	1	1	1	<u>4</u>	-	-
11.....	5	-	5	-	-	-	-	-	-	-	-	-	-	-	<u>5</u>	-
12 or more.....	15	-	15	-	-	-	-	-	-	1	2	-	-	2	2	<u>8</u>

- Represents zero.

APPENDIX A

Questions Used in the Content Reinterview Study—Initial Interview

This appendix contains facsimiles of the questions used in the initial interview of the Content Reinterview Study for the population items covered by this report.

Part 1. Reinterview Question Sequence for Origin or Descent

ORIGIN AND DESCENT																			
35. SPANISH SPEAKING COUNTRIES <div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%;">Argentina</div> <div style="width: 33%;">Castile</div> <div style="width: 33%;">Cuba</div> <div style="width: 33%;">Guatemala</div> <div style="width: 33%;">Minorca</div> <div style="width: 33%;">Peru</div> <div style="width: 33%;">Valencia</div> <div style="width: 33%;">Balearic Islands</div> <div style="width: 33%;">Chile</div> <div style="width: 33%;">Dominican Republic</div> <div style="width: 33%;">Honduras</div> <div style="width: 33%;">Nicaragua</div> <div style="width: 33%;">Puerto Rico</div> <div style="width: 33%;">Venezuela</div> <div style="width: 33%;">Bolivia</div> <div style="width: 33%;">Colombia</div> <div style="width: 33%;">Ecuador</div> <div style="width: 33%;">Majorca</div> <div style="width: 33%;">Panama</div> <div style="width: 33%;">Spain</div> <div style="width: 33%;">Canary Islands</div> <div style="width: 33%;">Costa Rica</div> <div style="width: 33%;">El Salvador</div> <div style="width: 33%;">Mexico</div> <div style="width: 33%;">Paraguay</div> <div style="width: 33%;">Uruguay</div> </div>																			
36. INTERVIEW CHECK ITEM C (Item 9)	36. <input type="checkbox"/> Person is son or daughter of the head – <i>Skip to 43</i> <input type="checkbox"/> Person is other than son or daughter of the head – <i>Continue with 37</i>	36. <input type="checkbox"/> Person is son or daughter of the head – <i>Skip to 43</i> <input type="checkbox"/> Person is other than son or daughter of the head – <i>Continue with 37</i>																	
37. Most of the people in the United States have ancestors who were born in other countries. We would like to find out where your ancestors came from. Where did (your) father or his ancestors come from?	37. List countries _____ <input type="checkbox"/> At least one country listed in item 35 ↳ <i>Record ancestors above and skip to 40</i> <input type="checkbox"/> None are listed in item 35 ↳ <i>Continue with 38</i>	37. List countries _____ <input type="checkbox"/> At least one country listed in item 35 ↳ <i>Record ancestors above and skip to 40</i> <input type="checkbox"/> None are listed in item 35 ↳ <i>Continue with 38</i>																	
38. Were any of (your) father's ancestors from a Spanish-speaking country? (PAUSE) <i>(For example: Spain, Mexico, Cuba, Central or South America, Puerto Rico, Caribbean)</i>	38. <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know } <i>Skip to 40</i>	38. <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know } <i>Skip to 40</i>																	
39. Which ancestors and where were they from?	<table border="1"> <thead> <tr> <th>Ancestors</th> <th>Country</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>	Ancestors	Country							<table border="1"> <thead> <tr> <th>Ancestors</th> <th>Country</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>	Ancestors	Country							
Ancestors	Country																		
Ancestors	Country																		
40. Where did (your) mother or her ancestors come from?	40. List countries _____ <input type="checkbox"/> At least one country listed in item 35 ↳ <i>Record ancestors above and skip to 43</i> <input type="checkbox"/> None are listed in item 35 ↳ <i>Continue with 41</i>	40. List countries _____ <input type="checkbox"/> At least one country listed in item 35 ↳ <i>Record ancestors above and skip to 43</i> <input type="checkbox"/> None are listed in item 35 ↳ <i>Continue with 41</i>																	
41. Were any of (your) mother's ancestors from a Spanish-speaking country? (PAUSE) <i>(For example: Spain, Mexico, Cuba, Central or South America, Puerto Rico, Caribbean)</i>	41. <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know } <i>Skip to 43</i>	41. <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know } <i>Skip to 43</i>																	
42. Which ancestors and where were they from?	<table border="1"> <thead> <tr> <th>Ancestors</th> <th>Country</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>	Ancestors	Country							<table border="1"> <thead> <tr> <th>Ancestors</th> <th>Country</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>	Ancestors	Country							
Ancestors	Country																		
Ancestors	Country																		
43. INTERVIEW CHECK ITEM D (Item 10)	43. <input type="checkbox"/> Person 14 or over – <i>Continue with 44</i> <input type="checkbox"/> Person 10 – 13 – <i>Skip to 79</i> <input type="checkbox"/> Person under 10 – <i>END INTERVIEW for this person</i>	43. <input type="checkbox"/> Person 14 or over – <i>Continue with 44</i> <input type="checkbox"/> Person 10 – 13 – <i>Skip to 79</i> <input type="checkbox"/> Person under 10 – <i>END INTERVIEW for this person</i>																	

Part 2. Reinterview Question Sequence for Mother Tongue

MOTHER TONGUE

MOTHER TONGUE					
14. What country (were you) born in? (was ...)	14. <input type="checkbox"/> U.S. <input type="checkbox"/> Other – Specify _____ <input type="checkbox"/> Don't know	14. <input type="checkbox"/> U.S. <input type="checkbox"/> Other – Specify _____ <input type="checkbox"/> Don't know			
15. What country was (your) father born in? (...'s)	15. <input type="checkbox"/> U.S. <input type="checkbox"/> Other – Specify _____ <input type="checkbox"/> Don't know	15. <input type="checkbox"/> U.S. <input type="checkbox"/> Other – Specify _____ <input type="checkbox"/> Don't know			
16. What country was (your) mother born in? (...'s)	16. <input type="checkbox"/> U.S. <input type="checkbox"/> Other – Specify _____ <input type="checkbox"/> Don't know	16. <input type="checkbox"/> U.S. <input type="checkbox"/> Other – Specify _____ <input type="checkbox"/> Don't know			
17. When (you were) (. . . was) a child, what languages were spoken in (your) home? (...'s) 18. Any others?	17. Mark all that apply – <input type="checkbox"/> English <input type="checkbox"/> Spanish <input type="checkbox"/> French <input type="checkbox"/> German <input type="checkbox"/> Italian <input type="checkbox"/> Other – Specify _____ _____ _____	17. Mark all that apply – <input type="checkbox"/> English <input type="checkbox"/> Spanish <input type="checkbox"/> French <input type="checkbox"/> German <input type="checkbox"/> Italian <input type="checkbox"/> Other – Specify _____ _____ _____			
If only one language reported, skip to 24; otherwise, ask 19.					
19. Which of these was used most?	19. <input type="checkbox"/> English – If only one foreign language, skip to 21; otherwise, ask 20.) <input type="checkbox"/> Other – Specify and skip to 24 _____	19. <input type="checkbox"/> English – If only one foreign language, skip to 21; otherwise, ask 20.) <input type="checkbox"/> Other – Specify and skip to 24 _____			
20. Other than English, which foreign language was used more?	20. Foreign language	20. Foreign language			
21. Who in (your) home (...'s) spoke _____ ? (foreign language in 20 or 17) 22. Anyone else?	21. Mark all that apply <input type="checkbox"/> Everyone <input type="checkbox"/> Self <input type="checkbox"/> Parent <input type="checkbox"/> Grandparent <input type="checkbox"/> Other relative <input type="checkbox"/> Non-relative	21. Mark all that apply <input type="checkbox"/> Everyone <input type="checkbox"/> Self <input type="checkbox"/> Parent <input type="checkbox"/> Grandparent <input type="checkbox"/> Other relative <input type="checkbox"/> Non-relative			
23. Would you describe for me how often and under what circumstances _____ was spoken? (foreign language)	23. Describe fully _____ _____ _____ _____ _____ _____	23. Describe fully _____ _____ _____ _____ _____ _____			

Part 3. Reinterview Question Sequence for Vocational Training

VOCATIONAL TRAINING		
44. (Have you) ever attended a vocational training program? (Has . . .)	44. <input type="checkbox"/> Yes – Skip to 48 <input type="checkbox"/> No	44. <input type="checkbox"/> Yes – Skip to 48 <input type="checkbox"/> No
45. FEMALE: (Have you) ever taken training in a specific skill such as: <ul style="list-style-type: none"> • Office work • Nursing • Beautician • Computer programming • Home decorating or in some other trade or craft? MALE: (Have you) ever taken training in a specific skill such as: <ul style="list-style-type: none"> • Office work • Mechanics • Computer programming • Welding • Farming or in some other trade or craft?	45. <input type="checkbox"/> Yes – Skip to 48 <input type="checkbox"/> No <input type="checkbox"/> Yes – Skip to 48 <input type="checkbox"/> No	45. <input type="checkbox"/> Yes – Skip to 48 <input type="checkbox"/> No <input type="checkbox"/> Yes – Skip to 48 <input type="checkbox"/> No
46. (Have you) ever attended a company training program other than on-the-job training? (Has . . .)	46. <input type="checkbox"/> Yes – Continue with 47 <input type="checkbox"/> No – Skip to 61	46. <input type="checkbox"/> Yes – Continue with 47 <input type="checkbox"/> No – Skip to 61
47. What type of training was that?	47. Specify field and skip to 51	47. Specify field and skip to 51
48. What was the MAIN field of training in that program? (Main field is one in which the person has had the most training. If trained equally in two or more fields, report most recent field of training that was completed.)	48. Specify in detail _____ _____	48. Specify in detail _____ _____
49. Was that training received in a school?	49. <input type="checkbox"/> Yes → What kind of school? <input type="checkbox"/> High school <input type="checkbox"/> College or University <input type="checkbox"/> Junior college <input type="checkbox"/> Community college <input type="checkbox"/> Trade or Business school <input type="checkbox"/> Technical institute <input type="checkbox"/> Company school <input type="checkbox"/> Other – Specify → } Skip to 51 <input type="checkbox"/> No – Continue with 50	49. <input type="checkbox"/> Yes → What kind of school? <input type="checkbox"/> High school <input type="checkbox"/> College or University <input type="checkbox"/> Junior college <input type="checkbox"/> Community college <input type="checkbox"/> Trade or Business school <input type="checkbox"/> Technical institute <input type="checkbox"/> Company school <input type="checkbox"/> Other – Specify → } Skip to 51 <input type="checkbox"/> No – Continue with 50

Part 3. Reinterview Question Sequence for Vocational Training—Continued

VOCATIONAL TRAINING – Continued			
50. Where or how did (you) (...) receive that training?	50. Specify _____ and mark one below <input type="checkbox"/> Apprenticeship <input type="checkbox"/> On-the-job training <input type="checkbox"/> Correspondence <input type="checkbox"/> Job corps <input type="checkbox"/> Armed Forces <input type="checkbox"/> Other		50. Specify _____ and mark one below <input type="checkbox"/> Apprenticeship <input type="checkbox"/> On-the-job training <input type="checkbox"/> Correspondence <input type="checkbox"/> Job corps <input type="checkbox"/> Armed Forces <input type="checkbox"/> Other
51. Did (you) (...) complete the full training program?	51. <input type="checkbox"/> Yes <input type="checkbox"/> Still attending – Skip to 57 <input type="checkbox"/> No – Skip to 54 <input type="checkbox"/> Not a formal program – Skip to 61		51. <input type="checkbox"/> Yes <input type="checkbox"/> Still attending – Skip to 57 <input type="checkbox"/> No – Skip to 54 <input type="checkbox"/> Not a formal program – Skip to 61
52. In what year did (you) (...) finish that program?	52. Year _____		52. Year _____
53. Did (you) (...) receive a certificate or diploma when you completed that program?	53. <input type="checkbox"/> Yes – Specify _____ <input type="checkbox"/> No		53. <input type="checkbox"/> Yes – Specify _____ <input type="checkbox"/> No
54. (Are you) (Is ...) using that training in (your) (his/her) current job or business?	54. <input type="checkbox"/> Yes – Skip to 57 <input type="checkbox"/> No		54. <input type="checkbox"/> Yes – Skip to 57 <input type="checkbox"/> No
55. Did (you) (...) ever use that training on a civilian job?	55. <input type="checkbox"/> Yes – Skip to 57 <input type="checkbox"/> No		55. <input type="checkbox"/> Yes – Skip to 57 <input type="checkbox"/> No
56. Was that training sufficient to enable (you) (...) to take a civilian job in that field without further training, experience, or qualifications?	56. <input type="checkbox"/> Yes <input type="checkbox"/> No – Explain _____ _____		56. <input type="checkbox"/> Yes <input type="checkbox"/> No – Explain _____ _____
57. How many weeks of instructions (were) (are) in the full program?	57. Weeks | Months | Years	OFFICE USE	57. Weeks | Months | Years | OFFICE USE
58. INTERVIEWER CHECK ITEM E (Item 51)	58. <input type="checkbox"/> Yes, completed program – Skip to 60 <input type="checkbox"/> Still attending . . . } Continue with 59 <input type="checkbox"/> No, did not complete		58. <input type="checkbox"/> Yes, completed program – Skip to 60 <input type="checkbox"/> Still attending . . . } Continue with 59 <input type="checkbox"/> No, did not complete
59. How many weeks of instructions did (you) (...) receive in that program?	59. Weeks | Months | Years	OFFICE USE	59. Weeks | Months | Years | OFFICE USE
60. About how many HOURS of instruction did (you) (...) receive each week?	60. Hours _____		60. Hours _____
61. INTERVIEWER CHECK ITEM F (Items 10 and 11)	61. FEMALE <input type="checkbox"/> 14–64 – Continue with 62 <input type="checkbox"/> 65 and over – Skip to 76 MALE <input type="checkbox"/> 14–34 – Skip to 79 <input type="checkbox"/> 35 and over – Skip to 76		61. FEMALE <input type="checkbox"/> 14–64 – Continue with 62 <input type="checkbox"/> 65 and over – Skip to 76 MALE <input type="checkbox"/> 14–34 – Skip to 79 <input type="checkbox"/> 35 and over – Skip to 76

Part 4. Census and Reinterview Questions for Other Selected Population Items

Item and census sample rate	Census question	Reinterview question
Country of birth—20%	<p>13. Where was this person born? <i>If born in hospital, give State or country where mother lived, not location of hospital.</i> <input type="checkbox"/> <i>If born outside U.S., see instruction sheet; distinguish Northern Ireland from Ireland (Eire).</i> This State OR (Name of State or foreign country; or Puerto Rico, Guam, etc.)</p>	<p>25. What country (were you) born in? (was ...) <input type="checkbox"/> U.S., Puerto Rico, Guam, Canal Zone, American Samoa, Virgin Islands — Skip to 37 <input type="checkbox"/> Other — Specify _____</p>
Naturalization and year of immigration—5%	<p>16. For persons born in a foreign country— a. Is this person naturalized? <input type="checkbox"/> Yes, naturalized <input type="checkbox"/> <input type="checkbox"/> No, alien <input type="checkbox"/> Born abroad of American parents b. When did he come to the United States to stay? 1965 to 70 1950 to 54 1925 to 34 1960 to 64 1945 to 49 1915 to 24 1955 to 59 1935 to 44 Before 1915</p>	<p>14. What country (were you) born in? (was ...) <input type="checkbox"/> U.S. <input type="checkbox"/> Other — Specify _____ <input type="checkbox"/> Don't know</p> <p>26. When did (you) first come to the U.S.? (Have you) left the United States since then? (Has ...) <input type="checkbox"/> Yes <input type="checkbox"/> No — Skip to 30</p> <p>28. Was that a change of residence or just a temporary trip? (e.g., business, vacation, etc.) <input type="checkbox"/> Change of residence <input type="checkbox"/> Temporary trip — Skip to 30</p> <p>29. When did (you) return to the United States? (Has ...) Date</p> <p>30. (Have you) filed citizenship papers? (Has ...) <input type="checkbox"/> Yes — Continue with 31 <input type="checkbox"/> No — Skip to 32 <input type="checkbox"/> Citizen by birth — Skip to 34</p> <p>31. (Have you) received (your) final papers? (Has ...) <input type="checkbox"/> Yes <input type="checkbox"/> No } Skip to 37 <input type="checkbox"/> No</p> <p>32. (Are you) an alien? (Is ...) <input type="checkbox"/> Yes <input type="checkbox"/> No — Skip to 34</p> <p>33. (Do you) intend to stay in the United States permanently or only temporarily? (Does ...) <input type="checkbox"/> Permanently } Skip to 37 <input type="checkbox"/> Temporarily</p> <p>34. How did (you) become a citizen? (...) Explain and skip to 37</p>
Country of birth of parents—15%	<p>14. What country was his father born in? United States OR (Name of foreign country; or Puerto Rico, Guam, etc.)</p> <p>15. What country was his mother born in? United States OR (Name of foreign country; or Puerto Rico, Guam, etc.)</p>	<p>15. What country was (your) father born in? (... 's) <input type="checkbox"/> U.S. <input type="checkbox"/> Other — Specify _____ <input type="checkbox"/> Don't know</p> <p>16. What country was (your) mother born in? (... 's) <input type="checkbox"/> U.S. <input type="checkbox"/> Other — Specify _____ <input type="checkbox"/> Don't know</p>

Part 4. Census and Reinterview Questions for Other Selected Population Items—Continued

Item and census sample rate	Census question	Reinterview question
Year moved into present house—15%	<p>18. When did this person move into this house (or apartment)? Fill circle for date of last move.</p> <p>1969 or 70 1965 or 66 1949 or earlier 1968 1960 to 64 Always lived in 1967 1950 to 59 this house or apartment</p>	<p>12. Enter date and mark one box below</p> <p><input type="checkbox"/> Moved in before 1960 } Continue with 13 <input type="checkbox"/> Moved in 1960 to June 1, 1970 <input type="checkbox"/> Moved in June 1, 1970 or later <input type="checkbox"/> Continue interview with item 87, page 18.</p>
Number of children ever born—20%	<p>25. If this is a girl or a woman— How many babies has she ever had, not counting stillbirths? Do not count her stepchildren or children she has adopted.</p> <p>1 2 3 4 5 6 7 8 9 10 11 12 or more None</p>	<p>62. (If obvious from relationship, mark appropriate box without asking.) (Are you) now married? (Is . . .)</p> <p>63. (Have you) ever been married? (Has . . .)</p> <p>64. We would like to ask you some questions about (your) children. First, how many of (your) children are now living with (you) ?</p> <p>65. How many children born to (you) are living elsewhere?</p> <p>66. (Have you) borne any children who have died since birth? (Has . . .)</p> <p>67. INTERVIEW CHECK ITEM G (Items 64–66)</p> <p>68. (Have you) ever adopted any children or been a foster mother or stepmother to any children? (Has . . .)</p> <p>69. Are these included in the children we just counted?</p> <p>70. We would like some information about the last child born to (you) . What is that child's full name as shown on the birth certificate?</p> <p>71. When was (he) born? (she)</p> <p>72. Where (were you) living when the (was . . .) baby was born?</p>

APPENDIX B

Questions Used in the Content Reinterview Study—Reconciliation Interview

This appendix contains facsimiles of the questions used to reconcile differences between the census response and the responses obtained in the initial interview of the Content Reinterview Study for selected population items.

Part 1. Reconciliation Questions for Origin or Descent

Section IV – POPULATION DATA – Continued	
Part E – ORIGIN OR DESCENT	
In the Census it was reported that you are of (09) _____ origin or descent.	
<p>1. Which of your (ancestors/forefathers) on your father's side were of (09) _____ origin? (List ancestors by country of origin and continue with 2)</p> <p>_____</p> <p>_____</p> <p><input type="checkbox"/> Father's ancestors not from there – Continue with 2</p>	<p>2. Which of your (ancestors/forefathers) on your mother's side were of (09) _____ origin? (List ancestors by country of origin)</p> <p>_____</p> <p>_____</p> <p><input type="checkbox"/> Mother's ancestors not from there</p>

Part 2. Reconciliation Questions for Mother Tongue

Part D – MOTHER TONGUE			
<p>1. In the Census it was reported that (06) _____ was spoken in your home when you were a child. We would like to know how often and under what circumstances (06) _____ was spoken.</p> <p>For example: Who in your home spoke (06) _____ ?</p> <p>Under what circumstances? (When used rather than some other language)</p> <p>_____</p> <p>How often?</p> <p>_____</p> <p>During entire childhood or only during part? (Continue with 2)</p> <p><input type="checkbox"/> Foreign language NEVER spoken in home – END PROBE for Part D</p>			
<p>2. What other languages besides (06) _____ were spoken in your home when you were a child? (Mark all that apply)</p> <table style="width: 100%;"> <tr> <td style="width: 60%;"> <input type="checkbox"/> English <input type="checkbox"/> Spanish <input type="checkbox"/> French <input type="checkbox"/> German <input type="checkbox"/> Italian <input type="checkbox"/> Other – Specify _____ </td> <td style="width: 40%; vertical-align: middle; text-align: center;"> <p style="font-size: 3em;">}</p> <p>Continue with 3</p> </td> </tr> </table> <p><input type="checkbox"/> No other language spoken →</p> <p style="margin-left: 40px;">Was any English spoken?</p> <p style="margin-left: 80px;"> <input type="checkbox"/> Yes – Continue with 3 <input type="checkbox"/> No – END PROBE for Part D </p>		<input type="checkbox"/> English <input type="checkbox"/> Spanish <input type="checkbox"/> French <input type="checkbox"/> German <input type="checkbox"/> Italian <input type="checkbox"/> Other – Specify _____	<p style="font-size: 3em;">}</p> <p>Continue with 3</p>
<input type="checkbox"/> English <input type="checkbox"/> Spanish <input type="checkbox"/> French <input type="checkbox"/> German <input type="checkbox"/> Italian <input type="checkbox"/> Other – Specify _____	<p style="font-size: 3em;">}</p> <p>Continue with 3</p>		
<p>3. Which language was used most in your home when you were a child?</p> <p><input type="checkbox"/> English</p> <p><input type="checkbox"/> Foreign language given in 1 above</p> <p><input type="checkbox"/> Some other language – Specify _____</p>			

Part 3. Reconciliation Questions for Vocational Training

Part F – COMPLETED VOCATIONAL TRAINING PROGRAM

In the Census it was reported that you had completed a vocational training program in (07) _____
(Decennial field of training)

We would like to ask you some questions about that program.

1. When did you attend that vocational training program?

☐ Date _____ – Continue with question 1, Part G.

☐ Never attended such a vocational training program –
END PROBES for Vocational Training

Part G – FIELD OF VOCATIONAL TRAINING

In the Census it was reported that you completed a vocational training program. We are not sure whether your main field of vocational training was in (07) _____
(Decennial field of training)

or in (08) _____
(Reinterview field of training)

1. Could you describe your main field of training in that program for me? (Describe in detail and mark (X) one box below.)

- ☐ Both correct – have had training in both – Skip to 3
☐ Both correct – two descriptions refer to the same training program – END PROBE for Part G
☐ Decennial report correct – Skip to 5
☐ Reinterview report correct – Continue with 2

2. Have you also had vocational training in (07) _____

- ☐ Yes – Continue with 3
☐ No – END PROBE for Part G

3. In which of these fields have you had the most training?

- ☐ Both approximately the same – Continue with 4
☐ Decennial field – Skip to 5
☐ Reinterview field – END PROBE for Part G

4. In which of these fields has your training been most recent?

- ☐ Decennial field – Continue with 5
☐ Reinterview field – END PROBE for Part G

5. Was your training in (07) _____ received in school?

- ☐ Yes – What kind of school? (Mark (X) one and skip to 7)
☐ High school ☐ Technical institute
☐ College or University ☐ Company school
☐ Junior college ☐ Other – Specify _____
☐ Community college
☐ Trade or Business school
☐ No – Continue with 6

6. Where or how did you receive that training?
(Specify and mark (X) one box below.)

- ☐ Apprenticeship ☐ Job corps
☐ On-the-job training ☐ Armed forces
☐ Correspondence ☐ Other

7. Did you complete the full training program?

- ☐ Yes
☐ Still attending – Skip to 13
☐ No – Skip to 10
☐ Not a formal program – END PROBE for Part G

8. In what year did you finish that program?

Year

9. Did you receive a certificate or diploma when you completed that program?

- ☐ Yes – Specify _____
☐ No

10. Are you using that training in your current job or business?

- ☐ Yes – Skip to 13 ☐ No

11. Did you ever use that training on a civilian job?

- ☐ Yes – Skip to 13 ☐ No

12. Was that training sufficient to enable you to take a civilian job in that field without further training, experience, or qualifications?

- ☐ Yes
☐ No – Explain _____

13. How many weeks of instructions (were/are) in the full program?

Weeks	Months	Years	OFFICE USE
-------	--------	-------	------------

14. INTERVIEWER CHECK ITEM – See item 7

- ☐ Yes, completed program – Skip to 16
☐ Still attending . . . Continue with 15
☐ No, did not complete

15. How many weeks of instructions did you receive in that program?

Weeks	Months	Years	OFFICE USE
-------	--------	-------	------------

16. About how many hours of instruction did you receive each week?

Hours

FAILED EDIT ITEMS ON REINTERVIEW (D-891)

Part 4. Reconciliation Questions for Other Selected Population Items

Item	Reconciled (yes or no)	Reconciliation question
Country of birth	Yes	<p>Part A – COUNTRY OF BIRTH</p> <p>We are not sure whether you were born in the United States or in (03) _____</p> <p>1. Could you tell me which is correct? (Specify and mark (X) one box below.)</p> <p>_____</p> <p><input type="checkbox"/> One of 50 States, D.C., Puerto Rico, Guam, Virgin Islands, Canal Zone or American Samoa.</p> <p><input type="checkbox"/> Born in foreign country</p> <p><input type="checkbox"/> Born at sea</p>
Naturalization and year of immigration—5%	No	
Country of birth of parents	Yes	<p>Part B – COUNTRY OF BIRTH – FATHER</p> <p>We are not sure whether your father was born in the United States or in (04) _____</p> <p>1. Could you tell me which is correct? (Specify and mark (X) one box below.)</p> <p>_____</p> <p><input type="checkbox"/> One of 50 States, D.C., Puerto Rico, Guam, Virgin Islands, Canal Zone or American Samoa.</p> <p><input type="checkbox"/> Born in foreign country</p> <p><input type="checkbox"/> Born at sea</p> <p>Part C – COUNTRY OF BIRTH – MOTHER</p> <p>We are not sure whether your mother was born in the United States or in (05) _____</p> <p>1. Could you tell me which is correct? (Specify and mark (X) one box below.)</p> <p>_____</p> <p><input type="checkbox"/> One of 50 States, D.C., Puerto Rico, Guam, Virgin Islands, Canal Zone or American Samoa.</p> <p><input type="checkbox"/> Born in foreign country</p> <p><input type="checkbox"/> Born at sea</p>
Year moved into present house	No	
Number of children ever born	No	

APPENDIX C

Computation of Response Error Measures and Their 95-Percent Confidence Intervals

DISPLAY OF CROSS-TABULATED DATA

General procedure						Example of procedure							
Display of cross-tabulated data for characteristic with L categories ($L \geq 2$). The general term X_{ij} represents the number of unweighted sample elements in the i th category in the reinterview and j th category in the census.						Relationship to head of household (artificial data)							
Reinterview ($i=1, \dots, L$)	Census ($j=1, \dots, L$)					Reinterview	Census						
	Total re- ported in census ²	Reported in census					Total re- ported in census	Reported in census					
Total re- ported		Cate- gory 1	Cate- gory 2	...	Cate- gory j	...		Cate- gory L	Total re- ported	Head of house- hold	Wife of head	Child	Other rela- tive
Total	$n'..^1$						8,750	530	2,470	2,040	3,180	470	60
Not reported in reinterview ²							370	150	70	40	80	20	10
Reported		$n..^3$	$X_{.1}$	$X_{.2}$	...	$X_{.j}$	...	8,380	2,400	2,000	3,100	450	50
Category 1		$X_{1.}$	X_{11}	X_{12}	...	X_{1j}	...	100	2,300	40	10	-	-
Category 2		$X_{2.}$	X_{21}	X_{22}	...	X_{2j}	...	90	2,100	60	120	20	-
.		.	.	.	.	.	.	140	3,000	40	20	30	10
.		.	.	.	.	.	.	40	500	40	30	400	-
Category i		$X_{i.}$	X_{i1}	X_{i2}	...	X_{ij}	...	10	100	10	40	-	40
.		.	.	.	.	.	.	110	100	10	40	-	40
.		.	.	.	.	.	.	110	100	10	40	-	40
Category L		$X_{L.}$	X_{L1}	X_{L2}	...	X_{Lj}	...	110	100	10	40	-	40

¹ $n'..$ is the total number of sample cases. In the actual data tables, row 1 and column 1 contain the appropriate marginal totals.

²In the actual data tables, row 2 and column 2 contain the numbers of cases for which there was no report for that item in either the census or reinterview.

³ $n..$ is the total number of sample cases for which there was a report in both the census and reinterview; that is, the total sample cases minus the "not re-ported" cases.

COMPUTING NET DIFFERENCE RATE

Net difference rate for category i:

$$\bar{e}_i = \frac{(X_{.i} - X_{i.})}{n_{..}} \times (100), \quad (i=1, \dots, L)$$

Net difference rate, head of household:

$$\bar{e}_i = \left(\frac{2,400 - 2,300}{8,000} \right) = \left(\frac{100}{8,000} \right) \times (100) = 1.2$$

COMPUTING NET SHIFT RATE

Net shift rate for category i:

$$\bar{e}_i = \frac{\left(\frac{X_{.i} - X_{i.}}{n_{..}} \right)}{\left(\frac{X_{i.}}{n_{..}} \right)} \times (100) \quad (i=1, \dots, L)$$

Net shift rate, head of household:

$$\bar{e}_i = \frac{\left(\frac{2,400 - 2,300}{8,000} \right)}{\left(\frac{2,300}{8,000} \right)} \times (100) = \frac{1.25}{\left(\frac{2,300}{8,000} \right)} = 4.4$$

COMPUTING INDEX OF INCONSISTENCY

Index of inconsistency for category i:

$$\hat{I}_i = \frac{(X_{.i} + X_{i.} - 2X_{ii})}{\frac{1}{n_{..}} \left[\sum_{i=1}^L (X_{.i} - X_{i.}) + X_{i.} (n_{..} - X_{.i}) \right]} \times (100) \quad (i=1, \dots, L)$$

Index of inconsistency, head of household:

$$\begin{aligned} \hat{I}_i &= \frac{(2,400 + 2,300 - 2(2,250))}{\frac{1}{8,000} \left[(2,400)(8,000 - 2,300) + (2,300)(8,000 - 2,400) \right]} \times (100) \\ &= \frac{(200)(8,000)}{(2,400)(5,700) + (2,300)(5,600)} \times (100) \\ &= \left(\frac{1,600,000}{26,560,000} \right) \times (100) = 6.0 \end{aligned}$$

NOTE: X_{ii} is on diagonal term.

L-fold index of inconsistency:

$$\hat{I}_{iL} = \frac{\left(\frac{\sum_{i=1}^L (X_{.i} - X_{i.})}{n_{..} - \sum_{i=1}^L X_{ii}} \right)}{\left(\frac{\sum_{i=1}^L X_{i.}}{n_{..} - \sum_{i=1}^L X_{ii}} \right)} \times (100)$$

L-fold index of inconsistency, relationship to head:

$$\begin{aligned} \hat{I}_{iL} &= \frac{(8,000) - (2,250 + 1,900 + 2,900 + 400 + 40)}{(8,000) - \frac{1}{8,000} \left[(2,400)(2,300) + (2,000)(2,100) + (3,100)(3,000) + (450)(500) + (50)(100) \right]} \times (100) \\ &= \left(\frac{8,000 - 7,490}{8,000 - 2406.25} \right) \times (100) = \left(\frac{510}{5,593.75} \right) \times (100) = 9.1 \end{aligned}$$

COMPUTING 95-PERCENT CONFIDENCE INTERVALS

95-percent confidence interval of net difference rate for category i : ($i=1, \dots, L$)

95-percent confidence limits are

$$\frac{(X_{.i} - X_{i.}) + 2\sqrt{X_{.i} + X_{i.} - 2X_{ii}} + 1}{n..} \times (100)$$

Exceptions

- a. If $(X_{.i} - X_{i.}) = 0$, then widen the high 95-percent confidence limit by adding $\frac{1}{2n..} \times (100)$
- b. If $(X_{.i} - X_{i.}) = 0$, then widen the low 95-percent confidence limit by subtracting $\frac{1}{2n..} \times (100)$
- c. If both a and b above, the 95-percent confidence limits are estimated as $\frac{-4}{n..} \times (100)$ to $\frac{+4}{n..} \times (100)$

95-percent confidence interval of index of inconsistency for category i : ($i=1, \dots, L$)

$$1. \text{ If } \frac{X_{.i} + X_{i.} - 2X_{ii}}{n..} \leq .10,$$

95-percent confidence limits are

$$\frac{(X_{.i} + X_{i.} - 2X_{ii} + 2) + 2\sqrt{X_{.i} + X_{i.} - 2X_{ii}} + 1}{n..} \times (100)$$

$$2. \text{ If } \frac{X_{.i} + X_{i.} - 2X_{ii}}{n..} > .10,$$

95-percent confidence limits are

$$\frac{(X_{.i} + X_{i.} - 2X_{ii} + 2) + 2\sqrt{\frac{1}{n..}(X_{.i} + X_{i.} - 2X_{ii})(n.. - X_{.i} - X_{i.} + 2X_{ii})}}{n..} \times (100)$$

95-percent confidence interval of net difference for head of household:

1. Low 95-percent confidence limit is

$$\frac{(2,400 - 2,300) - 2\sqrt{2,400 + 2,300 - 2(2,250)} + 1}{8,000} \times (100)$$

$$= \frac{(100) - 2\sqrt{201}}{8,000} \times (100) = \frac{71.7}{8,000} \times (100) = 0.9$$

2. High 95-percent confidence limit is

$$\frac{(2,400 - 2,300) + 2\sqrt{2,400 + 2,300 - 2(2,250)} + 1}{8,000} \times (100)$$

$$= \frac{100 + 2\sqrt{201}}{8,000} = \frac{128.3}{8,000} \times (100) = 1.6$$

95-percent confidence interval of index of inconsistency for head of household:

$$\frac{2,400 + 2,300 - 2(2,250)}{8,000} = .025$$

Low 95-percent confidence limit is

$$\frac{2,400 + 2,300 - 2(2,250) + 2 - 2\sqrt{2,400 + 2,300 - 2(2,250)} + 1}{8,000} \times (100)$$

$$= \frac{(202 - 2\sqrt{201}) \times (100)}{(2,400)(.7125) + (2,300)(.7)} = \frac{173.7}{3,320} \times (100) = 5.2$$

High 95-percent confidence limit is

$$\frac{(202 + 2\sqrt{201}) \times (100)}{(2,400)(.7125) + (2,300)(.7)} = \frac{230.3}{3,320} \times (100) = 6.9$$

COMPUTING 95-PERCENT CONFIDENCE INTERVALS—Continued

95-percent confidence interval for L-fold index of inconsistency

$$1. \text{ If } \frac{\left(n_{..} - \sum_{i=1}^L X_{ii} \right)}{n_{..}} \leq .10$$

95-percent confidence limits are

$$\frac{\left(n_{..} - \sum_{i=1}^L X_{ii} + 2 \right) \pm 2 \sqrt{\frac{n_{..} - \sum_{i=1}^L X_{ii} + 1}{n_{..}}}}{\left(n_{..} - \frac{1}{n_{..}} \sum_{i=1}^L X_{ii} \right)} \times (100)$$

$$2. \text{ If } \frac{\left(n_{..} - \sum_{i=1}^L X_{ii} \right)}{n_{..}} > .10$$

95-percent confidence limits are

$$\frac{\left(n_{..} - \sum_{i=1}^L X_{ii} + 2 \right) \pm 2 \sqrt{\frac{1}{n_{..}} \left(n_{..} - \sum_{i=1}^L X_{ii} \right) \left(\sum_{i=1}^L X_{ii} \right)}}{\left(n_{..} - \frac{1}{n_{..}} \sum_{i=1}^L X_{ii} \right)} \times (100)$$

95-percent confidence interval of L-fold index of inconsistency for relationship to head of household:

$$\frac{8,000 - (2,250 + 1,900 + 2,900 + 400 + 40)}{8,000} = \frac{510}{8,000} = .064$$

Low 95-percent confidence limit is

$$\frac{(510 + 2) - 2 \sqrt{\frac{510 + 1}{8,000}}}{\frac{1}{8,000} (2,400) (2,300) + (2,000) (2,100) + (3,100) (3,000) + 450 (500) + (50) (100)}$$

$$= \frac{512 - 2(22.6)}{(8,000 - 2406.25)} \times (100) = \frac{466.8}{5593.75} \times (100) = 8.3$$

High 95-percent confidence limit is

$$\frac{512 + 2(22.6)}{(8,000 - 2406.25)} \times (100) = \frac{557.2}{5593.75} \times (100) = 10.0$$



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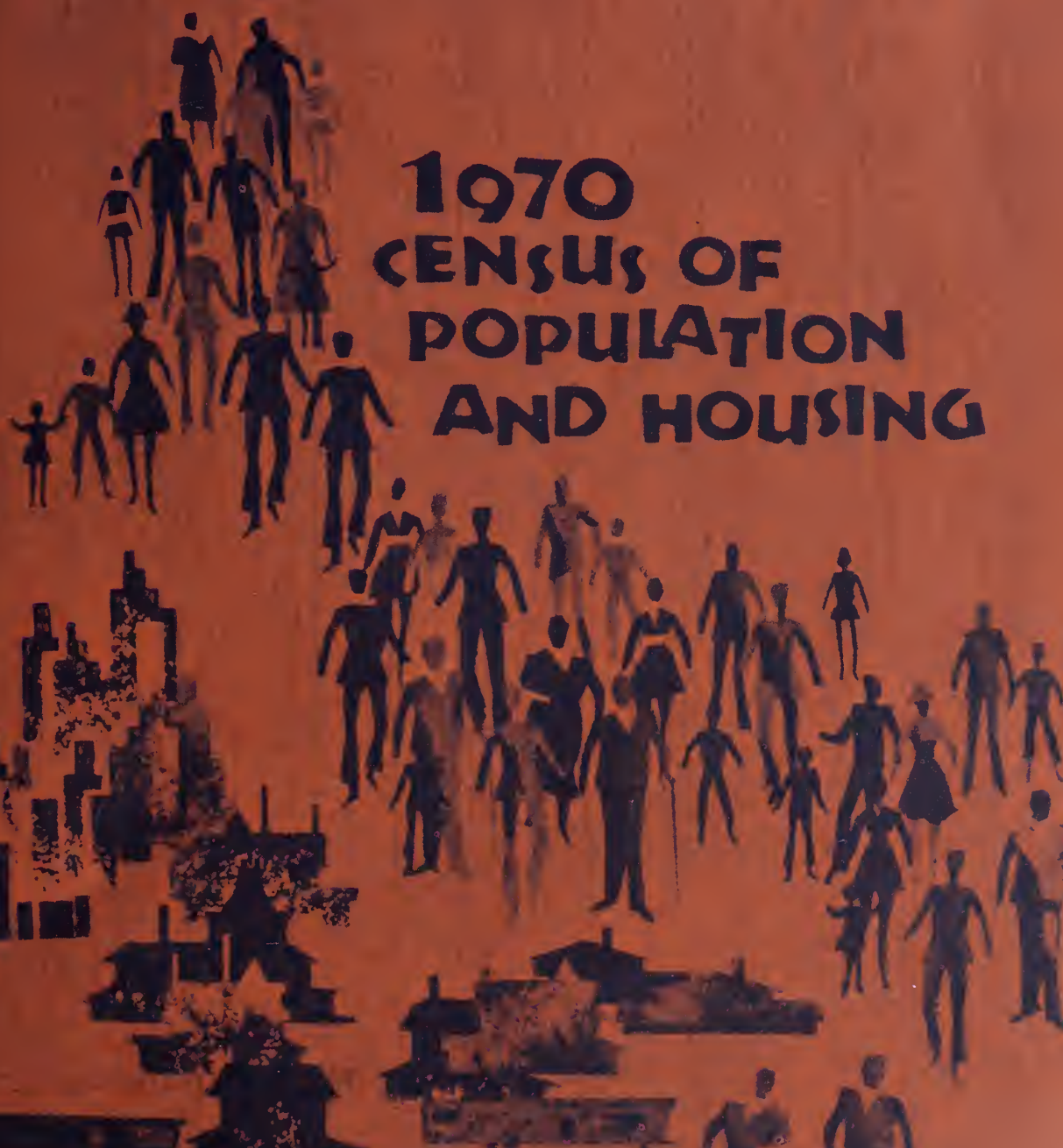
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U.S. DEPARTMENT
OF COMMERCE
Social and Economic
Statistics Administration

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THE CENSUS

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for Economic Affairs

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Edward D. Failor, Administrator

BUREAU OF THE CENSUS

Vincent P. Barabba, Director

Robert L. Hagan, Deputy Director

Daniel B. Levine, Associate Director for Demographic Fields

STATISTICAL METHODS DIVISION

Morton Boisen, Chief

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**1970
CENSUS OF
POPULATION
AND HOUSING**

Evaluation and Research Program

**Accuracy of Data
for Selected Housing
Characteristics as
Measured by Reinterviews**

Issued January 1975



Preface

This is one of a series of reports on results of the Evaluation and Research Program of the 1970 Census of Population and Housing. The program includes a variety of studies, each designed to produce data on the accuracy of selected subject matter or on the effectiveness of specific methodological features of the census-taking process. The major findings and results from these studies are being published in the PHC(E) series of reports.

In this report data are presented on the accuracy of reporting for selected housing characteristics as measured in a large scale reinterview program, carried out shortly after the 1970 census field work was completed. Response error data are presented for the following housing characteristics: Bathtub or shower facilities; flush toilet facilities; telephone availability; year structure built; heating fuel; renters paying extra for electricity, gas, other fuels, and water; seasonal vacancy status; value of home; tenure; contract rent; number of units in structure; number of bedrooms; piped water; kitchen facilities; heating equipment; and number of rooms.

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INTRODUCTION

This report presents information on the accuracy of data collected in the 1970 census for selected housing characteristics. The accuracy of the 1970 census data is affected by measurement errors which arise from a number of different sources—missing housing units will result in undercounts (see references 1, 2, and 3), housing characteristics may be erroneously reported, and respondents may fail to report some of the information requested for their housing units and adjustments for these units may introduce errors, etc.

This report is devoted exclusively to the effects on the quality of the census data of only one of these sources—error arising from the erroneous or unreliable reporting of housing characteristics on the census questionnaire. The measurement of this error is based on reinterviews conducted with a sample of households originally enumerated in the census. The reinterview data were obtained in a study established for this purpose—the Content Reinterview Study, and a detailed discussion of the survey design and operations is given in part 3 of this report.

The reinterview method is only one of a number of methods used to evaluate the erroneous reporting of housing characteristics. Other types of studies utilizing a case-by-case comparison include record checks—the comparison of census data with data obtained from an independent record source such as data on year built obtained from local records—and comparison of census data with that obtained from other sample surveys such as the Census of Governments Property Values Survey. (These types of studies are also included in the 1970 Evaluation and Research Program. Results from these will be reported in later publications in the PHC(E) series.)

In developing the 1970 Evaluation and Research Program, every housing characteristic included in the 1970 census was reviewed and considered for response error evaluation, either by the reinterview method or by one of the other methods cited above. The characteristics selected for inclusion in the reinterview study were those for which reinterview appeared to provide an adequate vehicle for measuring response error and for which another study could not produce the response error data more reliably or at less cost.

In the evaluation work of the Census Bureau, two general types of reinterview studies have been used. In the first type of study each person or housing unit is viewed as having a population of responses to a specific question which can be generated by independent repetition of the same survey procedure under the same general conditions. The general conditions include, at the least, the questionnaire used, the method of obtaining responses, the method of recording responses, and the sponsorship of the survey. The initial census or survey obtains one of these responses while the reinterview obtains a second, by

applying the same survey procedures under the same general conditions as existed in the initial interview. The two responses are assumed to have been selected randomly from the population of responses and are compared to produce estimates of the average trial-to-trial response variability, which is commonly referred to as simple response variance.

The second type of reinterview study is designed to obtain more accurate data than was feasible in the initial interview. It is assumed that the deficiencies of the original survey can be minimized in the reinterview by using better trained and more highly qualified interviewers, choosing the most knowledgeable respondents to provide the data, applying detailed questioning sequences to probe those areas where the questions or instructions may have been ambiguous or inadequate, and reconciling¹ different responses collected in the two interviews. These data are used as a standard of comparison for the initial census or survey responses and, therefore, shed light on systematic errors in the census or survey arising from problems in questionnaire wording, misinterpretation of a specific question on the part of the interviewer, etc.

It is clear, however, that neither of these two types of studies, in application, can meet their theoretical objectives. In both cases the estimates of response error may have a tendency to be understated. In the first case the conditions of the original interview may not be duplicated in the reinterview to yield an independent response under the same general survey conditions. For example, if the respondent answers the question in the census, he may answer in the reinterview on the basis of his reply to the census question rather than by making an independent attempt to answer the question. The second type of reinterview study is unlikely to obtain the "truth" in all cases since the respondent may deliberately falsify his responses, or he simply may not know the correct answer. Further, the Census Bureau shares with all survey organizations the problems of noninterviews. In reinterview studies, study plans usually cannot be completed for all sample cases. For example, in carrying through the 1970 reinterview study, the study plan for about 16 percent of the housing units selected for reinterview could not be completed. A more detailed discussion of the noninterview and matching problems associated with this study is provided in part 4 of this report. Even with these limitations, however, reinterview is considered a valuable method of evaluation. Following the 1950, the 1960, and the 1970 decennial censuses, reinterview studies were major components of the evaluation and research programs and were believed to have produced useful data on response errors and their distributions. (See references 4 through 13.)

¹ That is, the respondent was advised of the differences in the two reports for his housing unit, and additional questions were asked to determine the correct report.

The 19 housing characteristics selected for this analysis have been evaluated by both of the reinterview methods mentioned above. The first method, denoted as a response-variance type for this report, has been used to evaluate 11 of the characteristics: Bathtub or shower facilities; flush toilet facilities; telephone availability; year structure built; heating fuel; renters paying extra for electricity, gas, water, and other fuels²; seasonal

² These questions are used to determine if these items are paid for by the renter. If they are paid for by the renter, the reported average monthly costs for these items are combined with the contract rent to derive the gross rent. The evaluation of these characteristics is related only to whether or not the respondent correctly reported paying extra for these items. An evaluation of errors in reporting the average monthly costs for these items was conducted in a separate record-check study. Those results will be included in a later PHC(E) report.

vacancy status; and value of home. The second method, denoted as a response-bias type for this report, has been used for the remaining eight characteristics: Tenure; contract rent; number of units in structure; number of bedrooms, piped water; kitchen facilities; heating equipment; and number of rooms.

Although there is considerable emphasis on geographic detail in the Census of Housing, an evaluation program cannot provide a separate evaluation of each area for which census data are presented without incurring a cost many times that of the census itself. Therefore, this analysis of the accuracy of data is devoted primarily to national statistics, including some data by inside SMSA's and outside SMSA's.

PART 1. MEASURES OF RESPONSE ERROR

The Concept of Response Error

In simple terms, a response error results from the assignment of a housing unit to an incorrect category in a classification system. For example, if a housing unit belongs to the tenure category, rented for cash rent, a response error will result from the assignment of that housing unit to one of the other tenure categories. Such errors affect census data in at least three ways: (1) The errors may introduce bias into the estimate of the population parameter; (2) the errors create variability in the classification of an element over repeated trials, and (3) the errors distort the relationships among variables. If only a single observation is available for each element, it is not possible to estimate directly the bias and variability associated with the classification process from these observations, although the bias may be estimated when data from an independent record source are available. For the 1970 census evaluation programs, estimates of response error for a particular housing unit characteristic are obtained by comparing, for identical housing units, the responses obtained in the census and the responses obtained from another information source (e.g., a reinterview or an independent record source).

The effect of response errors on the quality of the data obtained for a particular category of a classification system is reflected by the level of net and gross error associated with that category. For a particular category, response errors produce misclassifications both into and out of the category. The net error associated with a category represents the difference between the number of housing units erroneously included in the category and those erroneously omitted from the category, while the gross error represents the sum of those numbers, or the total number of response errors associated with the category. Thus, the net error reflects bias in the category while the gross error reflects the variability in the classification process.

Summary Measures of Response Error

In this analysis two measures of response error are used for the comparison of reinterview and census data for identical housing units. One measure describes the amount of net error while the other measure describes the amount of gross error. Appendix D presents the formulas for computing the measures. All estimates of response error have been multiplied by 100 so that the computed values can be discussed as percentages.

Measure of Net Error

The measure of net error or bias presented here is the *net difference rate*. The net difference rate for a particular category describes the difference between the census and reinterview proportions of housing units in that category. A positive value of

the net difference rate indicates that the proportion of housing units in the category according to the census is greater than the corresponding reinterview proportion, while a negative value indicates that the census proportion is less than the corresponding reinterview proportion. A difference between the census and reinterview estimates of the proportions of housing units in a given category of a distribution, which is beyond that expected to result from sampling error, indicates bias in the census statistic when the second source of data is considered to be more accurate. For the characteristics which are evaluated by using a probing type reinterview and/or reconciliation, the reinterview can be viewed as a more accurate source of data and the net difference rate may be interpreted as a measure of bias. The summary measure tables show the proportion of housing units in the category, according to the reinterview, as well as the net difference rate. The sum of these values equals the proportion of households in the category according to the census. For example, table H shows that, according to the reinterview, an estimated 20.6 percent of all occupied housing units are heated by a steam or hot water system. The estimated net difference rate shown for this category is -2.0 percentage points indicating that an estimated 18.6 (20.6 - 2.0) percent of all households in the reinterview sample reported in the census that their house was heated by steam or hot water.

A relative measure of bias also can be derived. This measure, referred to as the *net shift*, is obtained by dividing the net difference rate for the category by the best estimate of the proportion of households in that category, i.e., the reinterview estimate. The net shift is not shown in the tables since the net difference rate provides a more reliable estimate of bias (i.e., has a smaller sampling error).

Measure of Gross Error

The measure of gross error presented in this report is the *index of inconsistency*. There are several ways of interpreting the index of inconsistency, and although each interpretation uses different terms, each is closely related to the others. The interpretations are as follows:

- (1) If each of the two observations is regarded as an independent repetition of the same survey procedure, the index of inconsistency estimates the ratio of simple response variance to the total variance.³

The total variance of responses equals the average simple response variance for the housing units (i.e., the variation among responses for the same housing unit in repeated inter-

³The concept of response variance and this method of interpreting the index was originally developed by Hansen, Hurwitz, and Bershad and is discussed fully in references 14 and 15. Interpretations (2) and (3) given in this section are extensions of that original model. (See reference 16.)

views) plus the sampling variance (i.e., the variance between housing units). When identical responses are obtained from observation to observation, the simple response variance is zero and the value of the index of inconsistency is zero. When the responses are so variable that simple response variance equals total variance, the value of the index is 100. In this latter case, we have the absurd situation that, in obtaining a single response from N housing units, we have nothing more reliable than might be obtained if one could take any housing unit in the population and interview it N times independently.

(2) Consider each housing unit in the population as having a cluster of potential responses which could be generated by independent repetition of the same survey procedures. If two responses are selected at random from this cluster, the index of inconsistency is the complement of the average intraclass correlation (δ) among the responses for each housing unit (that is, $I = 1 - \delta$).

When $\delta = 1$, there is perfect positive correlation between the pairs of responses for each housing unit, and the index equals zero.

When $\delta = 0$, there is no correlation between the pairs of responses and the index equals 100. This interpretation of the index of inconsistency is analogous to that given in paragraph (1) above.

Alternately, consider that there are two clusters of potential responses associated with each housing unit, each being generated by an independent repetition of different procedures (e.g., an interview and reinterview). If one response is selected at random from each cluster, the index of inconsistency is approximately the complement of the average correlation between the responses obtained using different procedures for each housing unit (i.e., $I = 1 - \rho_{GG'}$, where G denotes the general survey conditions associated with one procedure and G' denotes the general survey conditions associated with the other procedure). When $\rho_{GG'} = 1$, there is perfect positive correlation between the responses obtained for each procedure for each housing unit and the index equals zero. When $\rho_{GG'} = 0$, there is no correlation between the responses obtained for each procedure and the index equals 100. (If the census estimate is biased, the correlation cannot be perfect and the index cannot be zero.) This interpretation is analogous to that given in paragraph (3) below.

(3) The index of inconsistency also may be interpreted as a standardized measure of response differences in that the observed number of response differences is shown relative to a standard, the standard being the expected number of response differences that would occur if the pairs of observations were formed by random association. Under this interpretation, the index measures inconsistency on a scale from zero (perfect consistency) to 100 (complete lack of consistency).⁴

⁴When concerned with two different procedures rather than a repeat of the same procedure, the theoretical upper bound for the estimated index of inconsistency is 200. This maximum would occur when there are only two categories, the population is distributed between the two categories in equal proportions, and there is a perfect negative correlation between the two observations for all housing units. That is, housing units classified as "in category" on the first observation are classified as "not in category" on the second observation, and vice versa.

The nature of the data collected and the data-collection procedures used lead us to expect a positive correlation between observations. Thus, for the data collected in the reinterview and in the census, it is assumed that the true value of any index is never greater than 100.

Despite this assumption, a computed value of the index above 100 might occur as a result of sampling error. To reduce the risk of showing unreliable indices, the index was not estimated unless at least 10 sample observations were reported as "in category" in either the census or the reinterview.

When the second observation is not an attempt to repeat the original interview procedure but, for example, may represent an "improved" data source, the estimated index of inconsistency is almost sure to be an understatement of the ratio of the simple response variance of the original interview procedure to the total variance. The interpretation of the index in these terms as given in paragraph (1) is, therefore, questionable. The interpretations of the index given in the latter part of paragraph (2) and in paragraph (3) are appropriate, however, even when the second observation is not an attempt to repeat the original interview procedure.

Thus, for the housing characteristics evaluated by the response-variance type of reinterview, the interpretation of the index of inconsistency given in paragraph (1) is appropriate. For the characteristics evaluated by a response-bias type of reinterview, the reinterview data are expected to be generally more accurate than the census data, and the interpretation given in the latter part of paragraph (2) and in paragraph (3) for the index of inconsistency is considered to be appropriate.

Values of the index of inconsistency are computed and displayed for each response category in a distribution. For distributions with more than two categories (e.g., number of rooms), an index of inconsistency for the entire distribution, referred to as an *L-fold index of inconsistency*, is also displayed. (See reference 17.) This index is a weighted average of the individual indices computed for each category of the distribution. Conceptually, this measure is similar to the indices computed for individual categories. That is, it expresses the ratio of the observed number of differences in the entire distribution to the number of response differences that would be expected to result from a random association between the L -fold classifications on the first and second observations.

The index of inconsistency is only one of several measures that might be used to describe the total number of response differences (gross error) associated with data. Several alternate measures, such as "gross difference rate," "gross shift," and "percent identically reported," are discussed in references 4 through 12. From these measures, the index of inconsistency was chosen for use in this analysis because it provides a "standardized" measure of response differences. That is, it provides a basis for comparison of the consistency of responses (1) between various details of classification for the same characteristic, (2) between various methods of data collection, or (3) from one census to another.

It should be recognized that the level of the index is sensitive to the detail of the categories in which the data are collected. As the detail of the categories is decreased, the index cannot increase and most likely will decrease. Thus, the response variance associated with a particular distribution may be decreased to some extent by collapsing the categories of that distribution.

Sampling Variability

The measures of response error (index of inconsistency and net difference rate) presented here are based on a sample and are, therefore, subject to sampling variability. A 95-percent confidence interval has been constructed and is shown in the tables for each of the estimated response error measures. That is, the chances are about 95 out of 100 that the interval includes the average value of the estimates of the response error measures that could be obtained from all possible samples. These confidence intervals have been estimated from the sample results and provide a rough approximation on the extent of sampling error associated with each estimate. Due to the assumptions made in estimating

the sampling errors, these confidence intervals would be expected to understate the actual sampling variability for the estimated response errors. The formula used to compute the 95-percent confidence interval for each measure is provided in appendix D.

Use of Response Error Measures in Evaluating the Quality of Data

Of the two summary response error measures used here, the index of inconsistency probably provides the most information on the accuracy of the data collected while the net difference rate can be used to correct published census distributions. That is, for categories in a distribution where the sample data show evidence of bias, the net difference rate can be added to the published census percent in class to correct for the bias. The index of inconsistency cannot be used to correct census distributions, but it provides insights into the reliability of the data presented in the published distributions (both simple distributions and cross tabulations). The summary measures estimated for this report, however, share a common deficiency in their applications to published data. Both measures describe only the effect of response errors which occurred in the field stage of enumeration. That is, they do not reflect the effects of subsequent clerical and computer processing operations nor other sources of error such as coverage error and enumerator variance. For published census data accumulated to major geographic areas, we would expect the response errors which occurred at the field stage of enumeration to be the dominant source of error affecting the data. Thus, these summary measures provide a rough approximation of the amount of inconsistency and bias associated with this type of published data.

Where a simple distribution of a characteristic is presented (e.g., households by tenure), both the net difference rate and the index of inconsistency provide information about the quality of the data collected. The net difference rate and its 95-percent confidence interval indicate if systematic errors in reporting have introduced biases into the distribution.⁵ That is, a bias in a particular category of a distribution is indicated when the 95-percent confidence interval of the net difference does not include zero as a possible value. As indicated earlier, the sign of the limits of the interval indicate the direction of the bias—positive values indicate the estimated census percent in class is greater than the corresponding reinterview percent in class while negative values indicate the opposite.

For example, in table H (occupied, total) the net difference rate for the steam or hot water heating equipment category is -2.0 percentage points with the range of the 95-percent confidence interval from -2.6 to -1.5 percentage points. Thus, the sample data provide evidence that this heating equipment category is understated in the census and that the under-

statement may be as great as 2.6 percentage points or as small as 1.5 percentage points.

The indices of inconsistency associated with the simple distribution are important in evaluating the adequacy of the data-collection method for providing valid measures of the characteristics in the distribution. For the purpose of evaluating the adequacy of a data-collecting system, an index under 20 is considered small, those between 20 and 50 as moderate, and those over 50 as large. Large values of the index for a particular statistic or entire distribution are an indication that the data are unreliable and that (1) improvements are required in the method used to collect these data, (2) the concept itself may not be measurable by a household interview method, or (3) respondents are not able to provide accurate data to the detail desired.

An additional point needs to be considered when evaluating the level of the index of inconsistency: The index of inconsistency is *not* sensitive to the magnitude of a response error. For example, in a distribution with ordinal categories such as number of rooms, both a difference in reporting of one room and a difference in reporting of five rooms are weighted equally in the index of inconsistency. Thus, for these types of distributions an examination of the detailed cross-classified data would be required to determine the magnitude of the response errors.

For one characteristic presented with another characteristic in a cross tabulation (e.g., year structure built by tenure), erroneous classification into or out of the various categories of the distribution of either characteristic could introduce biases into the cross-tabulated data. In addition, the greater the gross differences for each of the characteristics, the more likely the relationship between the characteristics will be distorted. The expected effect of this distortion is to reduce correlations between characteristics. For this study neither indices of inconsistency nor net difference rates are provided for cross-tabulated data. However, where indices of inconsistency are known separately for all or some of the characteristics in the cross tabulation of interest (e.g., for year built and for tenure), they may serve as a guide in making inferences about the quality of the cross-classified data.

If the indices of inconsistency associated with each of the characteristics involved in the cross tabulation are large (i.e., over 50), it is likely that the cross-tabulated data are subject to serious biases. In that case, the user is advised to exercise extreme caution when using such data, particularly when inferences regarding the relationships between the characteristics are desired. Conversely, if the indices of inconsistency associated with each of the characteristics are small (i.e., under 20), the user may be somewhat confident about the accuracy of the cross-tabulated data.

There are no specific guidelines which are appropriate for areas between these extremes (i.e., moderate level indices as well as combinations of levels). For these situations, the user again should exercise caution when using the data and recognize that even a moderate degree of inconsistency in one or all of the characteristics can produce serious distortions in cross-tabulated data.

⁵ Of course, this is subject to the assumption that the reinterview data are more accurate than the census data. For those characteristics for which a response-bias type reinterview was used, this assumption generally is valid due to the type of reinterview and reconciliation procedures applied. For those characteristics for which a response-variance type reinterview was conducted, there is more of a question about the meaning of the net difference rate. (See page 9.)

PART 2. EVALUATION OF RESPONSES FOR SELECTED HOUSING CHARACTERISTICS

The discussion of the quality of responses for selected housing characteristics is divided into two sections. The first section describes the results for characteristics which involved no probing or reconciliation in the reinterview; the second section deals with those characteristics where a probing interview was conducted in the reinterview and/or the item was reconciled when differences were found between the census and reinterview responses. The questions used in the reinterview for each characteristic are shown in appendix A. For those characteristics where a reconciliation interview was conducted, the questions used are shown in appendix B.

To provide a general picture of the quality of data collected in the census for these selected housing characteristics, only L-fold indices of inconsistency are shown in the text tables. Among the detailed tables are tables showing summary measures of response error for each of the categories in a distribution for the total U.S., as well as for inside SMSA's, outside SMSA's, housing units with a Negro head of household, and housing units with a non-Negro head of household. The data from which these measures were computed are shown in separate detailed tables.

Summary of Results for Characteristics with Response-Variance Type Reinterview

The housing characteristics to be discussed in this section include:

1. Heating fuel
2. Renters paying extra for electricity
3. Renters paying extra for gas
4. Bathtub or shower facilities
5. Flush toilet facilities
6. Telephone availability
7. Year structure built
8. Seasonal vacancy status
9. Renters paying extra for water
10. Renters paying extra for other fuels
11. Value of home

Consistency of Reports for All Sample Households

The distributions for the first five of the above characteristics have fairly low levels of response variance on the average; that is, the estimated L-fold indices were all under 20. (See table A.) The distributions for the next five of the characteristics have moderate levels of response variance, with L-fold indices between 20 and 45. For the last characteristic, value of home, the census and reinterview responses are highly inconsistent, as reflected by the estimated L-fold index of 58.

Generally, owners report housing data more consistently than renters, responses for occupied units are more consistent than those for vacant units, and respondents in single-unit structures report more consistently than those in multiunit structures.

The L-fold indices cited above are applicable to the distributions in which the data were collected on the census questionnaire. They are not applicable to distributions obtained by collapsing the detailed categories since the level of the L-fold index is sensitive to the number and detail of the categories in the distribution. If the number of categories is increased, the L-fold index of inconsistency most likely will increase, while the index will decrease if the categories are collapsed. For example, when the value-of-home data are collapsed to a published distribution having six broader intervals (i.e., less than \$5,000, \$5,000-\$9,999, \$10,000-\$14,999, \$15,000-\$19,999, \$20,000-\$24,999, and \$25,000 or more), the L-fold index is estimated to be 47.⁶ Examination of the detailed value-of-home data indicates that the value reports were generally higher in the reinterview than in the census. That is, of the inconsistent responses, 59 percent are one interval higher in the reinterview than in the census and another 24 percent are two or more intervals higher. Another evaluation of the value-of-home question by use of a record-check type study has been conducted. These data will provide an additional basis for evaluating the accuracy of the census responses to this question. The results of this study will be included in a subsequent PHC(E) report. In addition, response error measures for these housing characteristics have been computed at the U.S. level by occupancy status, tenure, and size of structure. (See table A.)

Response error data for 2 of these 11 characteristics, bathtub or shower facilities and flush toilet facilities, are also available from the 1960 census. Comparison of 1970 and 1960 data indicates that the response variability is at about the same level. (See table A.) For example, the L-fold indices estimated for 1960 were 12 for bathtub or shower and 15 for flush toilet, compared with 17 and 16, respectively, in 1970. The 1960 indices are based on comparisons for units which were occupied in both the 1960 census and the reinterview. The 1970 indices cited above are based on a comparison for units which were occupied in the census but may have been occupied or vacant at the time of the reinterview. In addition, in 1960 differences between the census and reinterview responses were reconciled. Thus, the 1970 indices are probably slightly higher than those expected to result

⁶The reader may estimate the index of inconsistency for published distributions with fewer categories than are shown in this report by collapsing the sample data in the detailed tables to the appropriate categories and then applying the computational formulae given in appendix D.

if differences had been reconciled and the responses had been compared for only units occupied in both the 1970 census and reinterview.

Consistency of Reports for Units Inside and Outside SMSA's

The L-fold indices for these characteristics are shown in table B for units which are located either inside an SMSA or outside an SMSA. For the most part, the level of the inside and outside

SMSA L-fold indices for heating fuel, seasonal vacancy status, renters paying extra for electricity, renters paying extra for water, renters paying extra for other fuels, and value of home are about the same as shown for the total U.S. in table A. For the remaining characteristics—renters paying extra for gas, bathtub or shower facilities, flush toilet facilities, telephone availability, and year structure built—there are fairly large differences between the inside SMSA and outside SMSA levels of the L-fold indices. Two of these five characteristics—renters paying extra for gas and year structure built—are more consistently reported for units

Table A. L-Fold Indices of Inconsistency for Selected Housing Characteristics Estimated from Response-Variance Type Reinterview, U.S. Total: 1970 Census

Characteristic ¹ (number of categories in distribution)	1970 census		1960 census	
	L-fold index of inconsistency	95-percent confidence interval for L-fold index	L-fold index of inconsistency	95-percent confidence interval for L-fold index
Heating fuel (7) ²	12	10.2 to 13.3	(NA)	
Owner-occupied.....	8	6.8 to 10.0		
Renter-occupied.....	19	15.8 to 22.4		
Units in single-unit structures.....	9	7.5 to 10.7		
Units in multiunit structures.....	20	16.6 to 24.6		
Renters paying extra for electricity (2) ³	14	11.0 to 17.8	(NA)	
Renters paying extra for gas (2) ³	18	15.0 to 22.0	(NA)	
Bathtub or shower facilities (3) ⁴	18	15.3 to 21.3	(NA)	
Occupied units.....	17	14.3 to 20.7	@12	8.3 to 15.5
Vacant units.....	24	16.9 to 34.2	(NA)	
Units in single-unit structures.....	15	11.8 to 18.1	(NA)	
Units in multiunit structures.....	29	21.4 to 39.1	(NA)	
Flush toilet facilities (3) ⁴	18	15.4 to 21.7		
Occupied units.....	16	13.4 to 20.0	@15	10.3 to 19.0
Vacant units.....	30	21.2 to 41.1	(NA)	
Units in single-unit structures.....	14	11.4 to 18.0	(NA)	
Units in multiunit structures.....	31	22.3 to 42.2	(NA)	
Telephone availability (2) ⁵	24	21.1 to 26.6	(NA)	
Owner-occupied.....	22	18.8 to 26.8		
Renter-occupied.....	26	22.5 to 30.6		
Year structure built (6) ²	25	23.9 to 26.4	(NA)	
Owner-occupied.....	22	20.2 to 23.0		
Renter-occupied.....	36	33.0 to 38.6		
Occupied units in single-unit structures.....	25	23.1 to 26.0		
Occupied units in multiunit structures.....	29	25.8 to 31.9		
Vacant units.....	50	40.8 to 63.1		
Seasonal vacancy status (2) ⁶	31	24.4 to 39.3	(NA)	
Renters paying extra for water (2) ³	39	30.7 to 49.2	(NA)	
Renters paying extra for other fuels (2) ³	45	33.7 to 58.9	(NA)	
Value of home (11) ⁷	58	56.5 to 60.2	(NA)	

(NA) Not available. @ Based on units which were occupied in both the 1960 census and reinterview.

¹The universe of analysis for each housing item is indicated by a footnote. When used to delineate subcategories of the universe of analysis, tenure, size of structure, and occupancy status are as reported in the census.

²Units occupied in both census and reinterview, although not necessarily by the same household.

³Units in multiunit structures, occupied in both census and reinterview.

⁴All units.

⁵Units occupied in both census and reinterview by the same household.

⁶Vacant in both census and reinterview.

⁷Owned single-family units, on 10 or less acres and no business on property, occupied in both census and reinterview by the same household.

Table B. L-Fold Indices of Inconsistency for Selected Housing Characteristics Estimated from Response-Variance Type Reinterview, Inside and Outside SMSA's: 1970 Census

Characteristic ¹	Inside SMSA's		Outside SMSA's	
	L-fold index of inconsistency	95-percent confidence interval for L-fold index	L-fold index of inconsistency	95-percent confidence interval for L-fold index
Heating fuel.....	12	10.1 to 14.2	11	9.1 to 14.1
Renters paying extra for electricity.....	13	10.4 to 17.6	18	9.5 to 33.1
Renters paying extra for gas.....	16	12.6 to 19.6	33	23.4 to 48.6
Bath tub or shower facilities.....	30	23.4 to 37.5	14	11.0 to 17.5
Flush toilet facilities.....	27	20.4 to 34.9	16	12.3 to 19.6
Telephone availability.....	34	29.4 to 39.1	15	11.8 to 18.0
Year structure built.....	23	22.0 to 25.0	29	26.8 to 31.5
Seasonal vacancy status.....	35	20.1 to 60.0	32	24.3 to 42.8
Renters paying extra for water.....	41	31.0 to 54.2	37	24.9 to 57.5
Renters paying extra for other fuels.....	51	36.3 to 70.4	37	23.7 to 61.0
Value of home.....	58	55.8 to 60.4	62	58.4 to 65.0

¹Universe of analysis and number of categories in the distribution for each characteristic are identical to those given in table A.

inside SMSA's while the reports for the remaining three characteristics are more consistent for units which are outside SMSA's.

Consistency of Reports by Race of Head of Household

There are six characteristics for which the sample data provide evidence that the consistency of reporting differs by the race of the household head—heating fuel, renters paying extra for gas,

bath tub or shower facilities, flush toilet facilities, year structure built, and value of home. (See table C.) Heating fuel, year structure built, and value of home are more consistently reported for units with a non-Negro head while renters paying extra for gas, bath tub or shower facilities, and flush toilet facilities are more consistently reported for units with a Negro head.

However, only one characteristic—year structure built—clearly exhibits a major difference in the level of response variance

Table C. L-Fold Indices of Inconsistency for Selected Housing Characteristics Estimated from Response-Variance Type Reinterview, By Race of Head of Household: 1970 Census

Characteristic (number of categories in distribution)	Negro head of household		Non-Negro head of household	
	L-fold index of inconsistency	95-percent confidence interval for L-fold index	L-fold index of inconsistency	95-percent confidence interval for L-fold index
Heating fuel (7) ¹	19	13.4 to 26.3	10	8.4 to 11.5
Renters paying extra for electricity (2) ²	19	10.6 to 33.1	12	8.9 to 17.1
Renters paying extra for gas (2) ²	11	5.6 to 13.9	19	15.1 to 23.7
Bath tub or shower facilities (3) ¹	8	5.2 to 13.9	21	16.3 to 26.0
Flush toilet facilities (3) ¹	8	4.7 to 13.4	18	13.5 to 23.3
Telephone availability (2) ¹	25	19.7 to 32.2	24	20.9 to 27.6
Year structure built (6) ¹	43	37.9 to 48.8	22	21.0 to 23.6
Renters paying extra for water (2) ²	25	12.1 to 53.1	38	29.0 to 51.0
Renters paying extra for other fuels (2) ²	36	17.3 to 75.9	46	33.1 to 63.2
Value of home (11) ³	70	64.2 to 78.5	58	55.6 to 59.6

¹Units occupied in both census and reinterview by the same household.

²Units in multiunit structures, occupied in both census and reinterview by the same household.

³Owned single-family units, on 10 or less acres and no business on property, occupied in both census and reinterview by the same household.

associated with the census statistic for Negro and non-Negro heads of household.

Differences Between Census and Reinterview Estimates of Percent in Class

If the survey procedures used to collect the reinterview data were identical in all ways to those used in the census and the two trials were independent, the difference between the census and reinterview estimates of the proportion of units in a given class of a distribution should not be greater than that expected to result from sampling error. However, as indicated in table D by the net difference rates which are not asterisked, some fairly large differences beyond those due to sampling error did occur for various categories in the distributions for value of home, heating fuel, and vacancy status. Since the reinterview questions used for these items were similar to those used in the census and were not designed specifically to provide estimates of bias, one can only speculate about possible reasons for these differences.

Table D. Net Difference Rates for Selected Housing Characteristics Estimated from Response-Variance Type Reinterview, Total U.S.: 1970 Census

Characteristic ¹	Percent in class in reinterview	Net difference rate ²	95-percent confidence interval for net difference rate
VALUE OF HOME			
Less than \$5,000.....	4.0	1.7	1.0 to 2.3
\$5,000 to \$7,499.....	5.4	1.3	0.4 to 2.2
\$7,500 to \$9,999.....	6.1	3.0	2.0 to 4.0
\$10,000 to \$12,499.....	11.8	-1.4	-2.6 to -0.2
\$12,500 to \$14,999.....	6.2	3.6	2.5 to 4.7
\$15,000 to \$17,499.....	11.8	-2.0	-3.2 to -0.8
\$17,500 to \$19,999.....	7.6	2.5	1.4 to 3.6
\$20,000 to \$24,999.....	15.1	*-0.6	-2.0 to 0.7
\$25,000 to \$34,999.....	19.7	-4.6	-5.8 to -3.4
\$35,000 to \$49,999.....	8.7	-2.9	-3.7 to -2.1
\$50,000 or more.....	3.7	-0.6	-1.0 to -0.2
HEATING FUEL			
Gas.....	62.2	*0.3	-0.4 to 1.1
Electricity.....	4.8	1.2	0.7 to 1.7
Oil, kerosene.....	27.4	-1.5	-2.1 to -0.8
Coal.....	3.1	*0.0	-0.3 to 0.3
Wood.....	1.7	*-0.1	-0.3 to 0.2
Other.....	0.2	*0.0	-0.2 to 0.2
Not heated.....	0.5	*0.0	-0.2 to 0.2
SEASONAL VACANCY STATUS			
Year round.....	59.3	9.4	5.6 to 13.2
Seasonal migratory.....	40.7	-9.4	-13.2 to -5.6

*Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

¹The universe of analysis for "value of home" and "heating fuel" is units which were occupied in both census and reinterview. For "seasonal vacancy status" the universe of analysis is units which were vacant in both census and reinterview.

²A negative value of the net difference rate indicates that the estimated percent in class based on the census responses is less than the estimated percent in class based on the reinterview responses; a positive value indicates the opposite.

For value of home, the differences may be due to the fact that in the reinterview the respondent was asked about the purchase

price of his home prior to being asked about its present value. This sequence may have conditioned the respondent to provide a somewhat higher value of home than he gave in the census. For heating fuel, the reinterview responses may be more accurate than the census responses because in the reinterview the interviewer was instructed to determine heating fuel by observation wherever possible, in addition to questioning the respondent. For seasonal vacancy status, the difference may be due to the fact that in the reinterview the interviewer made a more accurate determination of seasonal vacancy status because he had a smaller workload than the census enumerator and, therefore, was able to spend more time investigating these cases.

Summary of Results for Characteristics with Response-Bias Type Reinterview

For eight housing characteristics, a response-bias type of reinterview has been conducted. This reinterview involves the use of a detailed questioning sequence designed to probe areas where the question or instructions may have been unclear and/or a reconciliation to obtain the "best" response when the census and reinterview classed the housing unit in different categories. In addition, personal visit reinterviews have been conducted with the interviewer, when feasible, observing the housing facilities he was enumerating. The reinterviews were conducted by the permanent staff of interviewers who work on the Bureau's Current Population Survey after special training on reinterview techniques. The housing characteristics discussed in this section include:

1. Tenure
2. Contract rent
3. Number of units in structure
4. Number of bedrooms
5. Piped water
6. Kitchen facilities
7. Heating equipment
8. Number of rooms

Differences between the census and reinterview responses have been reconciled for all of the above characteristics except bedrooms and kitchen facilities. The response error measures for the characteristics included in the reconciliation have been estimated from the data which incorporated the results of the reconciliation.

Consistency of Reports for All Sample Households

For the first four of these characteristics the inconsistency of responses between the census and reinterview is low, that is, the L-fold indices are all below 20. The next four characteristics fall in the moderately inconsistent range (i.e., L-fold indices estimated between 20 and 50), while the last characteristic, number of rooms, has the largest L-fold index of inconsistency—45. (See table E.) However, examination of the detailed cross classification of the census and reinterview reports for number of rooms indicates that, when an error in the census report occurred, the difference between the census and reinterview reports is generally one room (plus or minus). That is, where the census and reinterview reports differed, about 82 percent differ by only one room.

It should be noted that in this type of reinterview the index of inconsistency is best interpreted as the ratio of the observed number of response differences to the number of response differences expected to result from a chance association of the pairs of observations. The interpretation used earlier for the response-variance reinterview (i.e., the ratio of simple response variance to total variance) is not encouraged since the reinterview

Table E. L-Fold Indices of Inconsistency for Selected Housing Characteristics Estimated from Response-Bias Type Reinterview, U.S. Total: 1970 Census

Characteristic ¹ (number of categories in distribution)	1970 census		1960 census	
	L-fold index of inconsistency	95-percent confidence interval for L-fold index	L-fold index of inconsistency	95-percent confidence interval for L-fold index
Tenure (4) ²	4	3.6 to 5.1	(NA)	
Contract rent (14) ³	11	9.5 to 12.8	(NA)	
Units in single-unit structures.....	9	6.8 to 11.7		
Units in multiunit structures.....	12	10.5 to 14.6		
Number of units in structure (10) ⁴	15	13.5 to 15.9	(NA)	
Number of bedrooms (6) ⁵	18	17.0 to 20.1	(NA)	
Occupied units ⁶	18	16.7 to 19.8	26	23.4 to 28.9
Vacant units.....	33	23.1 to 48.8	(NA)	
Piped water (3) ⁴	21	18.2 to 25.0	(NA)	
Occupied units.....	18	14.7 to 21.5	@35	26.7 to 43.9
Vacant units.....	41	31.7 to 53.5	(NA)	
Units in single-unit structures.....	20	17.0 to 24.1	(NA)	
Units in multiunit structures.....	41	23.6 to 70.7	(NA)	
Kitchen facilities (3) ²	25	20.4 to 30.6		
Units in single-unit structures.....	21	16.7 to 26.8		
Units in multiunit structures.....	46	30.6 to 68.9		
Heating equipment (8) ⁵	27	26.0 to 28.5	(NA)	
Occupied units.....	27	25.3 to 27.9		
Owner-occupied.....	25	23.1 to 26.3		
Renter-occupied.....	32	29.6 to 34.1		
Vacant units.....	53	45.0 to 64.7		
Units in single-unit structures.....	25	23.8 to 26.7		
Units in multiunit structures.....	35	32.0 to 37.7		
Number of rooms (9) ⁵	45	44.1 to 46.8	(NA)	
Occupied units ⁷	45	43.9 to 46.6	@35	32.6 to 38.1
Owner-occupied.....	51	49.6 to 53.0	38	34.2 to 42.3
Rent-occupied.....	37	35.0 to 39.6	31	25.8 to 35.9
Vacant units.....	55	47.4 to 65.0	(NA)	
Units in single-unit structures.....	50	48.6 to 51.9	(NA)	
Units in multiunit structures.....	34	31.7 to 37.1	(NA)	

(NA) Not available. @ Based on units which were occupied in both the 1960 census and reinterview.

¹The universe of analysis for each housing item is indicated by a footnote. When used to delineate subcategories of the universe of analysis, tenure, size of structure, and occupancy status are as reported in the census.

²Units occupied in both census and reinterview by the same household.

³Rented units occupied in both census and reinterview by the same household.

⁴All units.

⁵Units occupied in the reinterview, occupied or vacant in the census.

⁶The 1960 census distribution for number of bedrooms included only five categories. The L-fold index for the 1970 census data using the same categories is 18.

⁷The 1960 census distribution for number of rooms included only eight categories. The L-fold indices for the 1970 census data using the same categories are 44, 49, and 37, respectively.

techniques used for these characteristics tend to produce an underestimate of this ratio. However, the ranges of the index used in this section for evaluative purposes (i.e., under 20, 20 to 50, and 50 or more) are identical to that used earlier for the characteristics evaluated by a response-variance reinterview. Had a response-variance reinterview been conducted for the characteristics in this section, the estimated indices of inconsistency may have been somewhat higher than those shown in table E since more response differences would be expected to result from that type of reinterview.

The consistency of reporting these housing characteristics at the U.S. level by occupancy status, tenure, and size of structure generally follows the pattern discussed earlier. That is, the reports for owners are more consistent than renters, data for occupied units are more consistently reported than data for vacant units, and data for single-unit structures are more consistently reported than data for multiunit structures.

There is one notable exception—reports for number of rooms—where the owner/renter and single/multiunit relationships are

reversed. Considering the definitional problems associated with the number-of-rooms question, this relationship seems reasonable. Single family homes are more likely to contain space for which there may be confusion about whether it qualifies as a room according to the census definitions. Utility rooms or basements (finished or unfinished), enclosed porches, and knee walled attic space are examples of the types of space which may cause this confusion.

Again, there is corresponding response error data available from the 1960 census for only three of these characteristics. For number of bedrooms, the 1970 census responses are somewhat more consistent than the 1960 census responses. The L-fold index for the 1970 census is estimated to be 18, as compared to the 1960 census estimate of 26.⁷ Piped water also is more consistently reported in the 1970 census than in the 1960 census as indicated by the L-fold indices of 18 and 35, respectively. Number of rooms is reported with about the same consistency in 1970 as in 1960. The 1960 census L-fold index is estimated to be 35 while for the 1970 census it is estimated to be 44.⁸

Consistency of Reports for Units Inside and Outside SMSA's

The L-fold indices for these characteristics by inside SMSA's and outside SMSA's are shown in table F. In general, these indices are of the same level as those shown in table E for the total U.S., and there is only one characteristic, kitchen facilities, for which there appears to be an important difference between the indices by inside SMSA's and outside SMSA's. For this characteristic, reports for units outside SMSA's are much more consistent than those for units inside SMSA's, as evidenced by the L-fold indices of 19 and 44, respectively.

⁷The 1960 census distribution for number of bedrooms included five categories while the 1970 census distribution included six categories. The L-fold index cited in the text for the 1970 census was computed using the five categories applicable to the 1960 census.

⁸The 1960 census distribution for number of rooms included eight categories while the 1970 census distribution included nine categories. The L-fold index cited in the text for the 1970 census was computed using the eight categories applicable to the 1960 census.

Consistency of Reports By Race of Head of Household

For the characteristics evaluated by a response-bias type of reinterview, there are six characteristics for which the sample data provide evidence that the consistency of reporting differs by race of head—number of units in structure, number of bedrooms, piped water, kitchen facilities, heating equipment, and number of rooms. (See table G.) The data indicate that piped water, kitchen facilities, and number of rooms are more consistently reported for units with a Negro head while number of units in structure, number of bedrooms, and heating equipment are more consistently reported for units with a non-Negro head. The above differences are statistically significant at the 95-percent confidence level. However, because of the small number of sample units with a Negro head of household, major differences in the level of response variance associated with the census statistics for Negro and non-Negro heads of household are not clearly indicated by the data.

Evidence of Bias in Census Distributions

The reinterview data indicate that moderate size biases exist in the census distributions for number of bedrooms and heating equipment. For number of bedrooms, there seems to have been some confusion by census respondents in renter-occupied units between the "none" and "one bedroom" categories. The "none" category for renter-occupied units is estimated to be understated in the census for the total U.S. by about 1.8 percentage points while the "one bedroom" category is estimated to be overstated by about 2.3 percentage points. (See table H.) A review of the reinterview records indicates that this confusion, for the most part, is associated with 1-room efficiency apartments which, by the census definition, are considered to have no bedroom. In a great number of cases these units have been reported by the census respondent as having one bedroom. It should be noted that as a part of the computer edits, a 1-room unit has been edited as having no bedroom. Thus, response errors of this type which occurred during the field phase of enumeration have been corrected as a result of that edit, and the published census figures for these categories do not contain this bias.

Table F. L-Fold Indices of Inconsistency for Selected Housing Characteristics Estimated from Response-Bias Type Reinterview, Inside and Outside SMSA's: 1970 Census

Characteristic ¹	Inside SMSA's		Outside SMSA's	
	L-fold index of inconsistency	95-percent confidence interval for L-fold index	L-fold index of inconsistency	95-percent confidence interval for L-fold index
Tenure.....	3	2.4 to 3.9	8	6.1 to 9.8
Contract rent.....	13	11.5 to 15.3	11	8.1 to 15.3
Number of units in structure.....	15	13.6 to 16.4	15	12.9 to 18.4
Number of bedrooms.....	17	15.0 to 18.7	22	19.5 to 25.5
Piped water.....	28	20.9 to 37.8	20	16.6 to 24.4
Kitchen facilities.....	44	32.1 to 59.4	19	14.7 to 25.4
Heating equipment.....	27	25.5 to 28.7	28	26.4 to 30.7
Number of rooms.....	44	42.1 to 45.4	49	46.4 to 51.1

¹Universe of analysis and number of categories in the distribution for each characteristic are identical to those given in table E.

Table G. L-Fold Indices of Inconsistency for Selected Housing Characteristics Estimated from Response-Bias Type Reinterview, By Race of Head of Household: 1970 Census

Characteristic (number of categories in distribution)	Negro head of household		Non-Negro head of household	
	L-fold index of inconsistency	95-percent confidence interval for L-fold index	L-fold index of inconsistency	95-percent confidence interval for L-fold index
Tenure (4) ¹	6	4.2 to 9.5	4	3.4 to 5.0
Contract rent (14) ²	12	8.4 to 16.7	12	10.2 to 13.8
Number of units in structure (10) ¹	19	15.0 to 23.0	12	11.2 to 13.9
Number of bedrooms (6) ¹	23	18.4 to 29.6	17	15.4 to 18.7
Piped water (3) ¹	12	8.0 to 17.5	20	15.4 to 25.8
Kitchen facilities (3) ¹	18	12.9 to 26.4	33	25.1 to 42.5
Heating equipment (8) ¹	35	30.9 to 39.6	25	23.7 to 26.6
Number of rooms (9) ¹	40	35.9 to 44.7	46	44.0 to 47.0

¹Units occupied in census and reinterview by the same household.

²Rented units occupied in census and reinterview by the same household.

For heating equipment, the reinterview data indicate that bias exists in the census distribution for most of the heating equipment categories for the total U.S. and for units both inside SMSA's and outside SMSA's. The direction of the net difference rate in each category for owner-occupied and renter-occupied units is the same as that for all occupied units except for the categories "central warm-air furnace" and "floor, wall or pipeless furnace." For the "central warm-air furnace" category the understatement of 1.6 percentage points for all occupied units results from the net effect of an estimated 3.4 percentage points understatement in this category for owner-occupied units and an estimated 2.1 percentage points overstatement in this category for renter-occupied units. The bias in the "floor, wall or pipeless furnace" category is concentrated in the renter-occupied units as indicated by the estimated net difference rate of -3.4 percentage points for these units versus the estimated net difference rate of 0.0 percentage points for owner-occupied units. (See table H.)

Some of these biases seem to be closely related to the differences observed for the heating fuels distribution discussed earlier. (See p. 9.) For example, there is overreporting of heating systems which use electricity as fuel (e.g., "built-in electric units") and underreporting of those that use oil or kerosene as fuel (e.g., "steam or hot water systems"). In fact, the heating equipment question may have contributed to response

errors in the heating fuel question. The heating equipment question preceded the heating fuel question on the census questionnaire. Respondents, when answering the heating fuel question, may have attempted to report a fuel consistent with their heating equipment report.

Although the net difference rates for contract rent provide no evidence of bias in this distribution, examination of the detailed data indicate that, of the cases where the census and reinterview responses differed, about two-thirds of the households reported paying a higher contract rent in the census than in the reinterview. This was contrary to our expectations and resulted in detailed review of the census and reinterview schedules for those units. Our findings indicate that in about half of these cases the household reported a rent increase occurring since April 1970 in the reinterview. However, in each of these cases the census response for contract rent appeared to already include this increase. This may have resulted, in some cases, from the fact that in the reinterview the respondent incorrectly reported the rent increase as occurring after April 1970 when in fact it occurred before April 1970. If this were true, the census response would be correct and the reporting errors above and below the diagonal would be approximately equal. However, no adjustments were made in the data tables for contract rent as it is not clear which source is in error.

Table I. Comparison of Census and Reinterview Enumeration Results as Obtained from Content Reinterview Study

(Data shown as numbers of sample cases in the Content Reinterview Study)															
Census enumeration results from 5- or 15-percent questionnaire															
Reinterview followup results	Total sample addresses	Enumerated as occupied										Enumerated as vacant			Other ¹
		Total		Single unit		Multunit		Structure size unknown		Total	Single unit	Multiunit	Structure size unknown		
		Same household as in re- interview	Different household from re- interview	Same household as in re- interview	Different household from re- interview	Same household as in re- interview	Different household from re- interview	Same household as in re- interview	Different household from re- interview						
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)		
1 Total sam- ple addresses	10,272	7,356	1,101	5,482	289	1,535	324	339	488	732	229	118	385	1,083	
2 Interviewed, total.....	9,356	7,356	656	5,482	289	1,535	323	339	44	444	229	118	97	900	
3 Occupied.....	8,821	7,356	415	5,482	181	1,535	208	339	26	204	94	63	47	846	
4 Single unit...	6,129	5,576	182	5,368	159	114	18	94	5	116	89	-	27	255	
5 Multunit.....	2,055	1,546	215	94	19	1,417	189	35	7	85	4	62	19	209	
6 Structure size unknown.....	637	234	18	20	3	4	1	210	14	3	1	1	1	382	
7 Vacant.....	535	241	108	108	115	18	18	18	18	240	135	55	50	54	
8 Single unit...	287	110	98	98	8	4	4	4	4	165	127	1	37	12	
9 Multunit....	204	122	10	10	106	6	6	6	6	69	5	54	10	13	
10 Structure size unknown.....	44	9	-	-	1	8	8	8	8	6	3	-	13	29	
11 Not inter- viewed, total.....	916	445	-	-	1	444	444	444	444	288	-	-	288	183	
12 Occupied.....	421	348	-	-	1	347	347	347	347	26	-	-	26	47	
13 Vacant.....	33	11	-	-	-	11	11	11	11	14	-	-	14	8	
14 Seasonal vacant ²	196	16	-	-	-	16	16	16	16	165	-	-	165	15	
15 Other (nonresi- dential, demo- lished, burned, could not find, non-existent, etc.).....	266	76	-	-	-	-	-	70	70	83	-	-	83	113	

- Represents zero.

¹Deleted from census, enumerated on census short form, questionnaire not found, questionnaires in various stages of census processing which could not be interrupted, etc.

²Defined as "out of scope" for this study except for the evaluation of the seasonal vacancy characteristics.

PART 3. SURVEY DESIGN AND OPERATIONS

The Content Reinterview Study was one of the studies conducted as part of the 1970 Census Evaluation and Research Program and was designed to produce data on the accuracy of responses to various questions included on the 1970 census questionnaire. The sample for this study was selected in three stages. The first stage involved the selection of a set of primary sampling units (PSU's). A PSU consists of a county, a group of contiguous counties, or an SMSA. This stage of selection made use of an existing sample of PSU's designated for the 235-PSU design. These PSU's also are used for many of the other sample programs conducted by the Bureau of the Census, and a detailed discussion of the principles used in the selection of primary sampling units is provided in the U.S. Bureau of the Census Technical Paper No. 7. (See reference 18.) The PSU's designated for the 235-PSU design comprise 484 counties and independent cities representing the 50 States and the District of Columbia.

The second stage of selection involved systematically designating clusters of long-form (census sample) households within each PSU such that each cluster was expected to include two 5-percent long-form addresses and six 15-percent long-form addresses. At the third and final stage of selection, each of the 5-percent addresses and one-third of the 15-percent addresses were selected; as a result, each designated cluster was expected to include two 5-percent addresses and two 15-percent addresses. The final sample for the Content Reinterview Study consisted of approximately 10,300 addresses about equally divided between those scheduled to complete a 5-percent long-form questionnaire and those scheduled to complete a 15-percent long-form questionnaire.

The total sample is of interest for this particular report since, with the exception of the heating fuel and the number-of-bedrooms questions, the housing questions discussed in this report were to be answered by all sample households. Part 4 provides a discussion of noninterviews and matching problems associated with the sample. (See table I.)

The reinterviews were conducted by the permanent staff of field interviewers who work on other sample surveys conducted by the Bureau. While this may have resulted in higher costs for

the field work than hiring temporary personnel to conduct the reinterviews, it was felt that gains in quality would result. The permanent staff is familiar with the Bureau's concepts, definitions, and data-collection procedures and readily could be trained to adapt to special interviewing features required in the reinterview. The interviewers were given special training consisting of 1 day of home study and practice interviewing and 1 day of classroom training on the techniques to be used in collecting data for the Content Reinterview Study.

Field reinterviewing began in early June 1970 and was carried out on a flow basis ending about November 1970, with the majority of the work finished by the end of September. The reinterviews were conducted at the address as it was found, without reference to the occupants at the time of the census. Movers were not followed up for reinterview. The reinterviews were conducted independent of the census enumeration. The interviewer was not given the names of people living at the sample addresses nor did he know how the sample household had answered the various questions on its census questionnaire.

After the field work was completed, the reinterview questionnaires were sent to the central processing unit in Jeffersonville, Ind., where a separate staff obtained the decennial census questionnaire for those same addresses in order to compare the census and reinterview data.⁹

The office staff compared the responses for the housing questions (as well as for the other data items). For certain questions where there were differences in responses, another interview was conducted in order to reconcile the differences.

The data on the census, reinterview, and reconciliation questionnaires were coded to a worksheet which was used to produce a computer tape containing all sets of data for each household. The detailed tables included in this report are from computer tabulations prepared from this tape.

⁹Table I shows that census questionnaires were not obtained for the comparison of 1,083 sample addresses. The majority of these questionnaires were in various stages of census processing which could not be interrupted.

Table H. Net Difference Rates for Selected Housing Characteristics Estimated from Response-Bias Type Reinterview: 1970 Census

(Estimates based on units which were occupied in both census and reinterview)

Characteristic	Total U.S.			Inside SMSA's			Outside SMSA's		
	Percent in class in re-interview	Net difference rate ¹	95-percent confidence interval for net difference rate	Percent in class in re-interview	Net difference rate ¹	95-percent confidence interval for net difference rate	Percent in class in re-interview	Net difference rate ¹	95-percent confidence interval for net difference rate
NUMBER OF BEDROOMS Occupied, total									
None.....	1.4	-0.6	-1.0 to -0.3	1.9	-0.9	-1.4 to -0.4	0.3	(S)	(S)
1.....	12.4	1.2	0.6 to 1.8	14.4	1.3	0.5 to 2.1	8.3	*0.9	-0.2 to 2.1
2.....	33.6	*-0.2	-1.2 to 0.7	32.1	*-0.4	-1.4 to 0.7	36.9	*0.3	-1.5 to 2.1
3.....	38.6	*-0.6	-1.5 to 0.4	38.4	*-0.6	-1.7 to 0.5	39.0	*-0.7	-2.5 to 1.2
4.....	10.4	*0.3	-0.4 to 1.0	9.7	*0.5	-0.2 to 1.3	11.5	*-0.1	-1.4 to 1.2
5 or more.....	3.6	*0.0	-0.5 to 0.4	3.5	*0.0	-0.5 to 0.5	3.9	*-0.3	-1.1 to 0.6
Owner-occupied									
None.....	0.2	(S)	(S)	0.1	(S)	(S)	0.3	(S)	(S)
1.....	3.6	0.7	0.1 to 1.3	3.8	*0.7	-0.1 to 1.4	3.4	*0.7	-0.5 to 1.9
2.....	30.4	*-0.7	-1.8 to 0.4	27.5	*-0.8	-2.2 to 0.5	35.4	*-0.1	-2.1 to 1.8
3.....	48.2	*-0.2	-1.4 to 1.0	50.8	*-0.3	-1.9 to 1.2	43.8	*-0.2	-2.3 to 1.9
4.....	13.2	*0.3	-0.6 to 1.2	13.2	*0.5	-0.6 to 1.5	12.8	*0.1	-1.5 to 1.7
5 or more.....	4.4	*0.0	-0.6 to 0.6	4.6	*0.1	-0.6 to 0.9	4.3	*-0.3	-1.4 to 0.7
Renter-occupied									
None.....	3.9	-1.8	-2.8 to -0.9	5.1	-2.4	-3.7 to -1.2	0.3	(S)	(S)
1.....	31.0	2.3	0.8 to 3.8	33.3	2.4	0.6 to 4.2	22.8	2.0	-0.9 to 4.9
2.....	40.5	*0.8	-0.8 to 2.3	40.5	*0.5	-1.1 to 2.0	40.9	1.3	-2.9 to 5.5
3.....	18.4	*-1.2	-2.6 to 0.2	16.1	*-0.8	-2.2 to 0.6	25.5	-2.0	-5.9 to 1.8
4.....	4.5	*0.3	-0.6 to 1.3	3.5	*0.7	-0.3 to 1.7	7.7	-0.7	-3.3 to 1.9
5 or more.....	1.8	*-0.3	-0.9 to 0.2	1.5	*-0.4	-0.9 to 0.2	2.7	-0.3	-2.0 to 1.3
HEATING EQUIPMENT Occupied, total									
Steam or hot water system.....	20.6	-2.0	-2.6 to -1.5	25.2	-2.2	-2.9 to -1.6	11.3	-1.6	-2.4 to -0.8
Central warm-air furnace	48.0	-1.6	-2.3 to -0.9	50.2	-1.4	-2.3 to -0.5	44.0	-1.9	-3.2 to -0.6
Built in electric units.	2.7	1.7	1.4 to 2.1	2.5	1.8	1.4 to 2.3	3.1	1.4	0.9 to 2.0
Floor, wall, or pipeless furnace.....	9.4	-1.1	-1.7 to -0.6	9.9	-1.8	-2.5 to -1.1	8.8	*0.0	-1.0 to 1.1
Room heaters with flue..	8.8	2.8	2.2 to 3.5	5.8	3.4	2.6 to 4.1	14.9	1.9	0.6 to 3.1
Room heaters without flue.....	4.9	0.8	0.3 to 1.3	2.9	0.9	0.4 to 1.4	8.8	*0.5	-0.5 to 1.5
Fireplace, stove or portable heater.....	5.1	-0.6	-1.1 to -0.2	3.1	-0.8	-1.2 to -0.3	9.1	*-0.5	-1.3 to 0.4
None, no equipment.....	0.4	*0.1	0.0 to 0.2	0.6	*0.1	-0.1 to 0.3	0.0	(S)	(S)
Owner-occupied									
Steam or hot water system.....	16.0	-0.8	-1.3 to -0.2	18.6	*-0.5	-1.2 to 0.2	11.3	-1.1	-2.0 to -0.1
Central warm-air furnace	57.5	-3.4	-4.2 to -2.5	62.3	-3.4	-4.4 to -2.4	49.6	-3.4	-4.9 to -1.7
Built in electric units.	2.6	1.2	0.8 to 1.6	2.1	1.2	0.7 to 1.6	3.4	1.2	0.6 to 1.9
Floor, wall, or pipeless furnace.....	8.2	*0.0	-0.6 to 0.6	8.3	*-0.6	-1.4 to 0.1	8.3	*1.0	-0.2 to 2.1
Room heaters with flue..	7.3	2.6	1.9 to 3.4	4.0	3.2	2.3 to 4.0	12.7	1.9	0.5 to 3.2
Room heaters without flue.....	4.3	*0.5	-0.1 to 1.0	2.2	*0.6	0.0 to 1.1	7.8	*0.4	-0.7 to 1.5
Fireplace, stove or portable heater.....	3.8	*-0.1	-0.6 to 0.3	2.0	*-0.3	-0.8 to 0.2	6.9	*0.0	-0.9 to 0.9
None, no equipment.....	0.3	*0.0	-0.1 to 0.1	0.4	*0.0	-0.2 to 0.2	0.0	(S)	(S)
Renter-occupied									
Steam or hot water system.....	30.3	-4.6	-5.8 to -3.5	37.1	-5.3	-6.8 to -3.8	11.5	-3.0	-4.5 to -1.5
Central warm-air furnace	28.2	2.1	0.8 to 3.4	28.3	2.2	0.6 to 3.8	27.8	2.4	0.1 to 4.7
Built in electric units.	3.0	2.7	1.9 to 3.6	3.1	3.0	2.0 to 4.0	2.6	2.1	0.8 to 3.4
Floor, wall, or pipeless furnace.....	11.7	-3.4	-4.5 to -2.2	12.6	-3.9	-5.2 to -2.5	9.9	-2.4	-4.5 to -0.3
Room heaters with flue..	12.1	3.1	1.8 to 4.4	9.0	3.7	2.2 to 5.2	21.4	*1.6	-1.1 to 4.3
Room heaters without flue.....	6.1	1.4	0.5 to 2.4	3.9	1.5	0.4 to 2.6	11.7	*0.8	-1.5 to 3.1
Fireplace, stove or portable heater.....	7.8	-1.7	-2.6 to -0.8	4.9	-1.5	-2.5 to -0.4	15.0	*-1.8	-3.8 to 0.3
None, no equipment.....	0.8	*0.2	-0.1 to 0.6	1.0	*0.2	-0.2 to 0.7	0.0	(S)	(S)

*Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

(S) Does not meet publication standards.

¹A negative value of the net difference rate indicates that the estimated percent in class based on census responses is less than the estimated percent in class based on the reinterview responses; a positive value indicates the opposite.

PART 4. LIMITATIONS OF DATA

The summary measures of response error presented in this report are subject to a number of limitations:

Sampling Variability

The data in this report are shown as numbers of sample housing units in the Content Reinterview Study and not as inflated national estimates. The sample of 5- and 15-percent sample questionnaires was selected using equal probability methods so that each sample case had the same weight.

Since the figures in this report are based on the sample data, they are subject to sampling variability. The measures of response error derived from these data are accompanied by an estimated 95-percent confidence interval. That is, the chances are about 95 out of 100 that the interval includes the average value of the estimates of the response error measures that could be obtained from all possible samples. The 95-percent confidence intervals have been estimated by assuming that the sample design consisted of a simple random sample of households rather than the design actually used (i.e., a stratified multistage systematic cluster sample of households). The estimated intervals will be understated to the extent that there is variability between nonself-representing PSU's and clustering of response errors within segments and households. Thus, these intervals should be interpreted as providing an indication of only the minimum amount of sampling variability associated with the estimates.

Source of Response Errors

The census data used in these analyses were obtained from the census schedules before any changes or imputations were made as part of the coding and computer processing. Thus, the response error measures reflect only response errors which occurred during the field data-collection process and do not reflect errors or corrections introduced during data processing or the effects on the statistics of housing units missed in the census.

Applicability to Small-Area Data

The response error measures shown in this report are applicable to statistics for the U.S., inside SMSA's, and outside SMSA's and, at most, can only be approximately applied to statistics for smaller areas. For small areas, the correlation between response errors due to the enumerators is likely to dominate as a source of variability. The effect of these correlations is not included in the data presented here. Data on the effects of enumerators on small-area data will be presented in a later report in the PHC(E) series.

Noninterviews and Matching Problems

Only 84 percent of the sample addresses were interviewed in the reinterview and matched to a census questionnaire. About 7 percent of the addresses were not matched because they were not reinterviewed, or they were demolished since the census, went to nonresidential status, or could not be located by the reinterviewer. The remaining 9 percent were not matched because the census questionnaire could not be obtained. (See table I.)

Some of the measures shown in this report are based only on data for units occupied by the same household at the time of both the census and the reinterview. For these characteristics (e.g., kitchen facilities and tenure), only about 72 percent of the sample units were occupied by the same household at both times and were matched. About 8 percent of the units were vacant in either the census or the reinterview, and about 4 percent were occupied by a different household in the census than in the reinterview. The remaining 16 percent were distributed as described above (i.e., not reinterviewed, census schedule not obtained, etc.).

The response error measures do *not* reflect the effects of the noninterview and matching problems on the data. The levels of the measures will be affected if the distribution of the response errors associated with units excluded from the analysis as a result of these problems is substantially different from the distribution of the errors associated with the units included in the analysis. For example, these matching and noninterview problems could result in certain types of units being more likely to be excluded from the analysis than others. The estimated proportions of housing units reported in the census in the various categories of each of the housing characteristics, as calculated from the reinterview sample data, were compared to the corresponding proportions obtained from the published census data. This comparison was made for the total U.S. as well as for inside SMSA's and outside SMSA's. It was found that the difference between the estimates from the reinterview sample and published census proportions were, in general, no larger than the differences expected to result from sampling error. In order to obtain the geographic data for tabulation by inside SMSA's and outside SMSA's, it was necessary to match the reinterview data tape to the final census sample detail tape. Because of matching problems encountered in this process, about 3 percent of the units in the original reinterview housing sample (table I, line 2, columns 2, 3, and 10) were not matched. As a result, the sample from which the tabulations for inside SMSA's and outside SMSA's were made is slightly smaller than the total sample. The comparability of the response error measures computed from these data with the measures for the total sample is affected only to the extent that

the cases lost in the matching process create a bias in the reduced sample.

In order to tabulate the housing data by Negro and non-Negro head of household, it was necessary to obtain the data on race of household head through a match to a tape containing the demographic characteristics for the persons in the reinterview

sample. However, the race of the household head was recorded only for those housing units having the same household in the census and reinterview. Thus, the sample upon which the response error measures for Negro and non-Negro head of household are based is restricted to housing units which have the same household in both census and reinterview, as well as having a census response for race and relationship to head.

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Table 1. Summary Measures of Response Error for Selected Housing Characteristics Estimated from Response-Variance Type Reinterview, Total U.S.: 1970 Census

(All estimates multiplied by 100)

Characteristic ¹	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class according to reinterview	Net difference rate ²	95-percent confidence interval for net difference rate
HEATING FUEL					
Gas.....	10	8.8 to 11.9	62.2	*0.3	-0.4 to 1.1
Electricity.....	23	18.2 to 28.1	4.8	1.2	0.7 to 1.7
Oil, kerosene.....	9	7.2 to 10.4	27.4	-1.5	-2.1 to -0.8
Coal.....	13	9.1 to 19.1	3.1	*0.0	-0.3 to 0.3
Wood.....	17	11.3 to 26.8	1.7	*-0.1	-0.3 to 0.2
Other.....	87	50.2 to 100.0	0.2	*0.0	-0.2 to 0.2
Not heated.....	24	11.8 to 47.3	0.5	*0.0	-0.2 to 0.2
L-fold index.....	12	10.2 to 13.3	(X)	(X)	(X)
RENTERS PAYING EXTRA FOR ELECTRICITY					
Paying extra.....	14	11.0 to 17.8	72.8	*-0.2	-1.6 to 1.1
Not paying extra.....	14	11.0 to 17.8	27.2	*0.2	-1.1 to 1.6
RENTERS PAYING EXTRA FOR GAS					
Paying extra.....	18	15.0 to 22.0	52.6	*-1.2	-3.0 to 0.5
Not paying extra.....	18	15.0 to 22.0	47.4	*1.2	-0.5 to 3.0
RENTERS PAYING EXTRA FOR WATER					
Paying extra.....	39	30.7 to 49.2	8.8	*-1.0	-2.4 to 0.4
Not paying extra.....	39	30.7 to 49.2	91.2	*1.0	-0.4 to 2.4
RENTERS PAYING EXTRA FOR OTHER FUELS					
Paying extra.....	45	33.7 to 58.9	6.7	-2.3	-3.6 to -1.0
Not paying extra.....	45	33.7 to 58.9	93.3	2.3	1.0 to 3.6
BATHTUB OR SHOWER FACILITIES					
Bathtub or shower for exclusive use of household.....	17	14.4 to 20.2	94.9	*-0.1	-0.4 to 0.2
Bathtub or shower used also by another household.....	31	22.4 to 41.8	0.9	*-0.1	-0.3 to 0.0
No bathtub or shower.....	17	14.0 to 20.2	4.3	*0.2	-0.1 to 0.5
L-fold index.....	18	15.3 to 21.3	(X)	(X)	(X)
FLUSH TOILET FACILITIES					
Flush toilet for exclusive use of household.....	17	14.2 to 20.4	95.5	*-0.1	-0.3 to 0.2
Flush toilet also used by another household.....	36	26.7 to 47.4	0.8	*0.0	-0.2 to 0.1
No flush toilet.....	16	13.0 to 19.5	3.7	*0.1	-0.1 to 0.4
L-fold index.....	18	15.4 to 21.7	(X)	(X)	(X)

See footnotes at end of table.

Table 1. Summary Measures of Response Error for Selected Housing Characteristics Estimated from Response-Variance Type Reinterview, Total U.S.: 1970 Census—Con.

(All estimates multiplied by 100)

Characteristic ¹	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class according to reinterview	Net difference rate ²	95-percent confidence interval for net difference rate
TELEPHONE AVAILABILITY					
Available.....	24	21.1 to 26.6	90.9	-1.0	-1.5 to -0.5
Not available.....	24	21.1 to 26.6	9.1	1.0	0.5 to 1.5
SEASONAL VACANCY STATUS					
Vacant year round.....	31	24.4 to 39.3	59.3	9.4	5.6 to 13.2
Vacant seasonal/migratory.....	31	24.4 to 39.3	40.7	-9.4	-13.2 to -5.6
YEAR STRUCTURE BUILT					
1969 or later.....	27	22.5 to 33.3	2.8	*0.0	-0.3 to 0.2
1965-1968.....	21	18.9 to 24.3	9.6	*0.2	-0.3 to 0.6
1960-1964.....	29	26.3 to 31.9	12.1	*0.0	-0.6 to 0.6
1950-1959.....	26	23.8 to 27.9	23.2	*-0.1	-0.8 to 0.6
1940-1949.....	44	40.3 to 47.2	11.7	0.8	0.1 to 1.6
1939 or earlier.....	16	14.5 to 17.3	40.6	-0.8	-1.5 to -0.2
L-fold index.....	25	23.9 to 26.4	(X)	(X)	(X)
VALUE OF HOME					
Less than \$5,000.....	39	33.1 to 46.9	4.0	1.7	1.0 to 2.3
\$5,000-\$7,499.....	61	53.5 to 68.7	5.4	1.3	0.4 to 2.2
\$7,500-\$9,999.....	66	59.4 to 73.7	6.1	3.0	2.0 to 4.0
\$10,000-\$12,499.....	65	60.0 to 71.3	11.8	-1.4	-2.6 to -0.2
\$12,500-\$14,999.....	72	65.9 to 79.8	6.2	3.6	2.5 to 4.7
\$15,000-\$17,499.....	66	60.8 to 72.3	11.8	-2.0	-3.2 to -0.8
\$17,500-\$19,999.....	69	63.0 to 76.0	7.6	2.5	1.4 to 3.6
\$20,000-\$24,999.....	67	62.1 to 71.9	15.1	*-0.6	-2.0 to 0.7
\$25,000-\$34,999.....	46	42.0 to 49.7	19.7	-4.6	-5.8 to -3.4
\$35,000-\$49,999.....	41	35.2 to 46.7	8.7	-2.9	-3.7 to -2.1
\$50,000 or more.....	20	15.1 to 26.9	3.7	-0.6	-1.0 to -0.2
L-fold index.....	58	56.5 to 60.2	(X)	(X)	(X)

X Not applicable.

* Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

¹The universes of analysis for these characteristics are described in table A.

²A negative value of the net difference rate indicates that the estimated percent in class based on census responses is less than the estimated percent in class based on the reinterview responses; a positive value indicates the opposite.

Table 2. Comparison of Census and Reinterview Responses for Heating Fuel, Total U.S.

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample cases reported as occupied in both census and reinterview. Data are subject to noninterviews and matching problems. Out of 5,178 5-percent long-form addresses sampled from census registers only 3,791, the basis of the data shown below, were interviewed as occupied in both census and reinterview. See table I for additional information on noninterviews and matching problems for the entire Content Reinterview Study)

Reinterview classification	Census classification									
	Total units	Not reported	Type of heating fuel reported in census							
			Total reported	Gas	Elec- tricity	Oil, kero- sene	Coal	Wood	Other	None
Total units....	3,791	100	3,691	2,307	227	951	118	62	8	18
Not reported.....	74	9	65	38	9	10	4	2	1	1
Reported.....	3,717	91	3,626	2,269	218	941	114	60	7	17
Gas.....	2,305	48	2,257	<u>2,176</u>	42	23	6	6	2	2
Electricity.....	182	8	174	<u>14</u>	<u>154</u>	5	-	-	-	1
Oil, kerosene....	1,015	21	994	63	<u>13</u>	<u>906</u>	7	1	4	-
Coal.....	121	8	113	4	4	<u>3</u>	<u>99</u>	2	-	1
Wood.....	66	3	63	6	2	2	<u>2</u>	<u>51</u>	-	-
Other.....	9	1	8	5	-	2	-	-	<u>1</u>	-
None.....	19	2	17	1	3	-	-	-	-	<u>13</u>

- Represents zero.

Table 3. Comparison of Census and Reinterview Responses for Extra Payment for Electricity, Total U.S.

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown are numbers of sample cases reported as occupied in multiunit structures in the reinterview and occupied in the census. Data are subject to noninterviews and matching problems as shown in table I.. Basis for data below is table I, line 5, cols. 2 and 3)

Reinterview classification	Census classification				
	Total units	Not reported	Extra payment for electricity reported in census		
			Total reported	Pays extra	Doesn't pay extra
Total units.....	1,761	436	1,325	961	364
Not reported.....	364	277	87	63	24
Reported.....	1,397	159	1,238	898	340
Pays extra.....	1,019	118	901	<u>865</u>	36
Doesn't pay extra.....	378	41	337	<u>33</u>	<u>304</u>

Table 4. Comparison of Census and Reinterview Responses for Extra Payment for Gas, Total U.S.

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown are numbers of sample cases reported as occupied in multiunit structures in the reinterview and occupied in the census. Data are subject to noninterviews and matching problems as shown in table I. Basis for data below is table I, line 5, cols. 2 and 3)

Reinterview classification	Census classification				
	Total units	Not reported	Extra payment for gas reported in census		
			Total reported	Pays extra	Doesn't pay extra
Total units.....	1,761	443	1,318	676	642
Not reported.....	372	278	94	47	47
Reported.....	1,389	165	1,224	629	595
Pays extra.....	726	82	644	<u>581</u>	63
Doesn't pay extra.....	663	83	580	48	<u>532</u>

Table 5. Comparison of Census and Reinterview Responses for Extra Payment for Water, Total U.S.

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown are numbers of sample cases reported as occupied in multiunit structures in the reinterview and occupied in the census. Data are subject to noninterviews and matching problems as shown in table I. Basis for data below is table I, line 5, cols. 2 and 3)

Reinterview classification	Census classification				
	Total units	Not reported	Extra payment for water reported in census		
			Total reported	Pays extra	Doesn't pay extra
Total units.....	1,761	449	1,312	102	1,210
Not reported.....	376	276	100	7	93
Reported.....	1,385	173	1,212	95	1,117
Pays extra.....	139	32	107	<u>65</u>	42
Doesn't pay extra.....	1,246	141	1,105	30	<u>1,075</u>

Table 6. Comparison of Census and Reinterview Responses for Extra Payment for Other Fuels, Total U.S.

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown are numbers of sample cases reported as occupied in multiunit structures in the reinterview and occupied in the census. Data are subject to noninterviews and matching problems as shown in table I. Basis for data below is table I, line 5, cols. 2 and 3)

Reinterview classification	Census classification				
	Total units	Not reported	Extra payment for other fuels reported in census		
			Total reported	Pays extra	Doesn't pay extra
Total units.....	1,761	499	1,262	56	1,206
Not reported.....	472	295	177	8	169
Reported.....	1,289	204	1,085	48	1,037
Pays extra.....	99	26	73	35	38
Doesn't pay extra.....	1,190	178	1,012	13	999

Table 7. Comparison of Census and Reinterview Responses for Bathtub or Shower Facilities, Total U.S.

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data are subject to noninterviews and matching problems as shown in table I. Basis for data below is table I, line 2, cols. 2, 3, and 10)

Reinterview classification	Census classification					
	Total units	Not reported	Bathtub or shower facilities reported in census			
			Total reported	For exclusive use of household	Used also by another household	No bathtub or shower
Total units.....	8,456	52	8,404	7,959	69	376
Not reported.....	67	4	63	54	6	3
Reported.....	8,389	48	8,341	7,905	63	373
Bathtub or shower for exclusive use of household.....	7,958	45	7,913	7,839	13	61
Bathtub or shower used also by another household.....	72	-	72	19	47	6
No bathtub or shower...	359	3	356	47	3	306

- Represents zero.

Table 8. Comparison of Census and Reinterview Responses for Flush Toilet Facilities, Total U.S.

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data are subject to noninterviews and matching problems as shown in table I. Basis for data below is table I, line 2, cols. 2, 3, and 10)

Reinterview classification	Census classification					
	Total units	Not reported	Flush toilet facilities reported in census			
			Total reported	For exclusive use of household	Used also by another household	No flush toilet
Total units.....	8,456	48	8,408	8,017	71	320
Not reported.....	60	3	57	50	5	2
Reported.....	8,396	45	8,351	7,967	66	318
Flush toilet for exclusive use of household.	8,015	42	7,973	7,908	18	47
Flush toilet used also by another household..	70	-	70	20	44	6
No flush toilet.....	311	3	308	39	4	265

- Represents zero.

Table 9. Comparison of Census and Reinterview Responses for Telephone Availability, Total U.S.

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units reported as being occupied by same household in census and reinterview. Data are subject to noninterviews and matching problems as shown in table I. Basis for data below is table I, line 3, col. 2)

Reinterview classification	Census classification				
	Total units	Not reported	Telephone availability reported in census		
			Total reported	Phone available	Phone not available
Total units.....	7,356	100	7,256	6,523	733
Not reported.....	41	3	38	35	3
Reported.....	7,315	97	7,218	6,488	730
Phone available.....	6,638	77	6,561	6,376	185
Phone not available....	677	20	657	112	545

Table 10. Comparison of Census and Reinterview Responses for Year Structure Built, Total U.S.

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units reported as occupied in census and reinterview. Data are subject to noninterviews and matching problems as shown in table I. Basis for data below is table I, line 3, cols. 2 and 3)

Reinterview classification	Census classification								
	Total units	Not reported	Year structure built reported in census						
			Total reported	1969 or later	1965 to 1968	1960 to 1964	1950 to 1959	1940 to 1949	1939 or earlier
Total units....	7,771	258	7,513	200	697	882	1,733	991	3,010
Not reported.....	643	60	583	8	22	49	132	121	251
Reported.....	7,128	198	6,930	192	675	833	1,601	870	2,759
1969 or later.....	202	7	195	<u>142</u>	30	8	5	2	8
1965 to 1968.....	683	21	662	42	<u>539</u>	61	12	2	6
1960 to 1964.....	861	25	836	3	84	<u>622</u>	105	7	15
1950 to 1959.....	1,640	33	1,607	2	17	121	<u>1,286</u>	129	52
1940 to 1949.....	832	19	813	2	3	11	<u>124</u>	<u>519</u>	154
1939 or earlier.....	2,910	93	2,817	1	2	10	69	211	<u>2,524</u>

Table 11. Comparison of Census and Reinterview Responses for Seasonal Vacancy Status, Total U.S.

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units reported as vacant in both census and reinterview. Data are subject to noninterviews and matching problems as shown in table I. Basis for data below is table I, lines 7 and 14, col. 10)

Reinterview classification	Census classification		
	Total units	Seasonal vacancy status reported in census	
		Vacant year round	Vacant seasonal/migratory
Total units.....	405	278	127
Vacant year round.....	240	<u>230</u>	10
Vacant seasonal/ migratory.....	165	48	<u>117</u>

Table 12. Comparison of Census and Reinterview Responses for Value of Home, Total U.S.

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of single-family sample units reported as occupied by same household in census and reinterview. Data are subject to noninterviews and matching problems as shown in table I. Basis for data below is table I, line 4, col. 4).

Reinterview classification	Census classification													
	Total units	Not owned, tenure not reported, or value of home not reported	Value of home reported in census											
			Total reported	Less than \$5,000	\$5,000 to \$7,499	\$7,500 to \$9,999	\$10,000 to \$12,499	\$12,500 to \$14,999	\$15,000 to \$17,499	\$17,500 to \$19,999	\$20,000 to \$24,999	\$25,000 to \$34,999	\$35,000 to \$49,999	\$50,000 or more
Total units...	5,368	1,382	3,986	238	282	370	417	393	377	395	563	603	228	120
Not reported.....	1,414	1,078	336	33	35	36	39	36	22	26	36	51	14	8
Reported.....	3,954	304	3,650	205	247	334	378	357	355	369	527	552	214	112
Less than \$5,000...	170	26	144	<u>109</u>	26	2	3	-	1	1	1	1	-	-
\$5,000 to \$7,499...	217	18	199	56	<u>96</u>	37	4	-	4	1	1	-	-	-
\$7,500 to \$9,999...	238	14	224	22	68	<u>108</u>	23	2	1	-	-	-	-	-
\$10,000 to \$12,499...	476	46	430	13	32	<u>141</u>	<u>169</u>	54	12	6	2	-	-	1
\$12,500 to \$14,999...	235	10	225	1	4	15	87	<u>96</u>	16	3	3	-	-	-
\$15,000 to \$17,499...	459	30	429	4	13	13	52	<u>139</u>	<u>160</u>	36	9	3	-	-
\$17,500 to \$19,999...	289	12	277	-	3	5	17	36	75	<u>119</u>	19	2	1	-
\$20,000 to \$24,999...	577	27	550	-	4	6	19	20	69	165	<u>232</u>	32	2	1
\$25,000 to \$34,999...	769	50	719	-	1	7	4	8	16	35	240	<u>395</u>	12	1
\$35,000 to \$49,999...	350	31	319	-	-	-	-	2	1	3	19	118	<u>166</u>	10
\$50,000 or more....	174	40	134	-	-	-	-	-	-	-	1	1	33	<u>99</u>

- Represents zero.

Table 13. Summary Measures of Response Error for Selected Housing Characteristics Estimated from Response-Bias Type Reinterview, Total U.S.: 1970 Census

(All estimates multiplied by 100)

Characteristic ¹	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class according to reinterview	Net difference rate ²	95-percent confidence interval for net difference rate
TENURE					
Owned or being bought.....	3	2.8 to 4.1	68.6	*-0.1	-0.4 to 0.2
Cooperative or condominium.....	24	14.3 to 41.1	0.4	*0.1	0.0 to 0.2
Rented for cash.....	3	2.1 to 3.3	28.1	*-0.3	-0.5 to 0.0
Occupied without payment of cash rent.	20	16.4 to 25.4	2.9	*0.2	0.0 to 0.5
L-fold index.....	4	3.6 to 5.1	(X)	(X)	(X)
CONTRACT RENT					
Less than \$30.....	6	3.5 to 12.0	4.4	*0.0	-0.4 to 0.4
\$30 to \$39.....	10	6.4 to 17.2	4.4	*-0.1	-0.6 to 0.3
\$40 to \$49.....	13	9.4 to 19.0	7.3	*-0.5	-1.2 to 0.1
\$50 to \$59.....	11	7.5 to 15.3	8.6	*0.0	-0.6 to 0.7
\$60 to \$69.....	9	6.0 to 12.3	10.8	*-0.2	-0.8 to 0.4
\$70 to \$79.....	9	6.2 to 13.9	7.7	*-0.1	-0.6 to 0.4
\$80 to \$89.....	12	8.5 to 16.7	8.6	*0.3	-0.4 to 0.9
\$90 to \$99.....	18	13.4 to 25.2	6.5	*-0.4	-1.1 to 0.3
\$100 to \$119.....	14	11.0 to 18.9	11.5	*0.5	-0.3 to 1.3
\$120 to \$149.....	10	7.6 to 13.4	15.7	*0.0	-0.8 to 0.7
\$150 to \$199.....	9	6.3 to 13.0	9.9	*0.2	-0.4 to 0.8
\$200 to \$249.....	10	5.3 to 19.5	2.3	*0.4	0.0 to 0.7
\$250 to \$299.....	5	1.3 to 18.0	1.2	*-0.1	-0.4 to 0.1
\$300 or more.....	7	2.4 to 21.2	1.1	*0.2	0.0 to 0.5
L-fold index.....	11	9.5 to 12.8	(X)	(X)	(X)
NUMBER OF UNITS IN STRUCTURE					
1 detached.....	5	4.2 to 5.7	69.4	*0.2	-0.1 to 0.6
1 attached.....	34	29.3 to 39.8	3.1	*0.1	-0.3 to 0.4
2.....	17	14.8 to 19.5	8.0	*-0.2	-0.5 to 0.2
3-4.....	21	17.9 to 24.9	4.4	*-0.1	-0.4 to 0.2
5-9.....	26	22.2 to 31.0	3.5	*0.0	-0.3 to 0.3
10-19.....	28	23.1 to 33.0	2.8	*0.1	-0.2 to 0.4
20-49.....	25	21.1 to 30.3	3.3	-0.5	-0.8 to -0.2
50 or more.....	18	14.4 to 22.9	2.3	*0.4	0.2 to 0.6
Mobile home.....	6	3.8 to 8.3	3.1	*-0.2	-0.3 to 0.0
Other.....	95	67.2 to 100.0	0.1	0.2	0.1 to 0.4
L-fold index.....	15	13.5 to 15.9	(X)	(X)	(X)
NUMBER OR BEDROOMS					
No bedroom.....	44	31.6 to 60.3	1.5	-0.7	-1.1 to -0.4
1 bedroom.....	17	14.2 to 19.7	12.9	1.2	0.6 to 1.9
2 bedrooms.....	17	15.4 to 19.5	33.7	*-0.2	-1.1 to 0.8
3 bedrooms.....	17	15.4 to 19.4	38.1	*-0.6	-1.5 to 0.4
4 bedrooms.....	21	17.8 to 24.8	10.2	*0.3	-0.3 to 1.0
5 or more bedrooms.....	24	19.0 to 31.4	3.6	*-0.1	-0.5 to 0.3
L-fold index.....	18	17.0 to 20.1	(X)	(X)	(X)
PIPED WATER					
Hot and cold piped water.....	15	12.2 to 18.0	95.4	*-0.1	-0.4 to 0.1
Cold water only.....	37	31.4 to 44.1	2.2	*0.1	-0.2 to 0.4
No piped water.....	19	14.8 to 23.7	2.4	*0.0	-0.2 to 0.2
L-fold index.....	21	18.2 to 25.0	(X)	(X)	(X)

See footnotes at end of table.

Table 13. Summary Measures of Response Error for Selected Housing Characteristics Estimated from Response-Bias Type Reinterview, Total U.S.: 1970 Census—Con.

(All estimates multiplied by 100)

Characteristic ¹	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class according to reinterview	Net difference rate ²	95-percent confidence interval for net difference rate
KITCHEN FACILITIES					
Complete facilities for exclusive use of household.....	24	19.8 to 29.8	97.0	*0.2	0.0 to 0.5
Complete facilities also used by another household.....	100	62.8 to 100.0	0.2	*-0.1	-0.2 to 0.0
No complete facilities.....	22	17.8 to 27.6	2.8	*-0.2	-0.4 to 0.1
L-fold index.....	25	20.4 to 30.6	(X)	(X)	(X)
HEATING EQUIPMENT					
Steam or hot water.....	16	14.8 to 18.1	20.5	-2.1	-2.6 to -1.6
Central warm-air.....	20	18.2 to 21.1	47.7	-1.6	-2.3 to -0.8
Built-in electric.....	36	31.4 to 41.9	2.7	1.8	1.5 to 2.2
Floor furnace.....	36	32.6 to 39.4	9.5	-1.3	-1.8 to -0.7
Heater with flue.....	42	38.9 to 45.9	8.9	2.8	2.2 to 3.5
Heater without flue.....	41	36.7 to 46.0	5.0	0.8	0.3 to 1.3
Portable heater.....	37	32.5 to 41.7	5.2	*-0.7	-1.1 to 0.2
No equipment.....	29	18.8 to 44.6	0.4	*0.1	0.0 to 0.2
L-fold index.....	27	26.0 to 28.5	(X)	(X)	(X)
NUMBER OF ROOMS					
1 room.....	35	27.0 to 46.6	0.9	*0.2	0.0 to 0.4
2 rooms.....	47	40.8 to 54.3	2.7	*-0.1	-0.4 to 0.3
3 rooms.....	31	28.1 to 34.0	10.2	-0.7	-1.2 to -0.2
4 rooms.....	35	32.5 to 36.9	19.4	*0.7	0.0 to 1.5
5 rooms.....	46	43.3 to 47.8	24.1	1.3	0.3 to 2.2
6 rooms.....	52	49.1 to 54.1	21.6	*0.1	-0.8 to 1.1
7 rooms.....	59	55.9 to 63.2	11.8	*-0.8	-1.6 to 0.0
8 rooms.....	61	55.7 to 66.8	5.6	*-0.5	-1.0 to 0.1
9 or more rooms.....	39	34.2 to 45.0	3.8	*-0.3	-0.7 to 0.0
L-fold index.....	45	44.1 to 46.8	(X)	(X)	(X)

X Not applicable.

* Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

¹The universes of analysis for these characteristics are described in table E.

²A negative value of the net difference rate indicates that the estimated percent in class based on census responses is less than the estimated percent in class based on the reinterview responses; a positive value indicates the opposite.

Table 14. Comparison of Census and Reinterview Responses for Tenure, Total U.S.

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units reported as being occupied by the same household in census and reinterview. Data are subject to noninterviews and matching problems as shown in table I. Basis for data below is table I, line 3, col. 2)

Reinterview classification	Census classification						
	Total units	Not reported	Tenure reported in census				
			Total reported	Owned	Cooperative or condominium	Rented for cash	Occupied without payment of cash rent
Total units.....	7,356	50	7,306	5,080	32	1,972	222
Not reported.....	278	7	271	259	-	10	2
Reported.....	7,078	43	7,035	4,821	32	1,962	220
Owned.....	4,857	32	4,825	<u>4,772</u>	7	12	34
Cooperative or condominium.....	26	-	26	2	<u>22</u>	2	-
Rented for cash.....	1,989	9	1,980	27	3	<u>1,934</u>	16
Occupied without payment of cash rent.....	206	2	204	20	-	14	<u>170</u>

- Represents zero.

Table 15. Comparison of Census and Reinterview Responses for Contract Rent, Total U.S.

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units of known size in the census reported as renter-occupied by the same household in census and reinterview. Data are subject to noninterviews and matching problems as shown in table I. Basis for data below is table I, line 3, cols. 4 and 6)

Reinterview classification	Census classification																
	Total units	NA, not rented, or not reported	Contract rent reported in census														
			Total reported	\$0 to \$30	\$30 to \$39	\$40 to \$49	\$50 to \$59	\$60 to \$69	\$70 to \$79	\$80 to \$89	\$90 to \$99	\$100 to \$119	\$120 to \$149	\$150 to \$199	\$200 to \$249	\$250 to \$299	\$300 or more
Total units.....	7,017	5,103	1,914	87	84	126	165	200	146	169	114	234	296	196	51	20	26
NA, not rented, or not reported.....	5,116	5,039	77	6	5	2	6	6	7	6	2	14	8	10	2	-	3
Reported.....	1,901	64	1,837	81	79	124	159	194	139	163	112	220	288	186	49	20	23
\$ 0 to \$30.....	91	10	81	<u>76</u>	3	-	1	-	-	-	-	1	-	-	-	-	-
\$30 to \$39.....	85	4	81	2	<u>72</u>	4	2	-	-	-	-	1	-	-	-	-	-
\$40 to \$49.....	139	5	134	2	3	<u>113</u>	7	2	2	2	1	-	1	-	-	-	1
\$50 to \$59.....	163	5	158	1	-	3	<u>143</u>	5	1	2	1	1	1	-	-	-	-
\$60 to \$69.....	204	6	198	-	-	2	2	<u>181</u>	6	4	2	1	-	-	-	-	-
\$70 to \$79.....	146	5	141	-	-	-	1	2	<u>128</u>	6	2	2	-	-	-	-	-
\$80 to \$89.....	165	7	158	-	-	1	2	2	1	<u>143</u>	6	3	-	-	-	-	-
\$90 to \$99.....	127	7	120	-	-	1	-	-	1	5	<u>96</u>	10	5	1	-	-	1
\$100 to \$119.....	216	5	211	-	1	-	1	1	-	1	4	<u>188</u>	13	2	-	-	-
\$120 to \$149.....	293	4	289	-	-	-	-	1	-	-	-	<u>11</u>	<u>264</u>	13	-	-	-
\$150 to \$199.....	187	5	182	-	-	-	-	-	-	-	-	2	4	<u>169</u>	7	-	-
\$200 to \$249.....	43	1	42	-	-	-	-	-	-	-	-	-	-	1	<u>41</u>	-	-
\$250 to \$299.....	22	-	22	-	-	-	-	-	-	-	-	-	-	-	1	<u>20</u>	1
\$300 or more.....	20	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-	<u>20</u>

- Represents zero.

Table 16. Comparison of Census and Reinterview Responses for Number of Units in Structure, Total U.S.

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data are subject to noninterviews and matching problems as shown in table I. Basis for data below is table I, line 2, cols. 2, 3, and 10)

Reinterview Classification	Census classification												
	Total units	Not reported	Number of units in structure reported in census										
			Total reported	1 detached	1 attached	2	3-4	5-9	10-19	20-49	50 or more	Mobile home	Other
Total Units.....	8,456	212	8,244	5,739	261	645	354	289	238	229	222	240	27
Not reported.....	3	-	3	2	-	-	-	1	-	-	-	-	-
Reported.....	8,453	212	8,241	5,737	261	645	354	288	238	229	222	240	27
1 detached.....	5,848	131	5,717	5,642	16	28	5	4	-	1	1	6	14
1 attached.....	263	7	256	15	173	38	17	9	2	-	-	-	2
2.....	675	14	661	42	36	551	20	8	1	-	-	-	3
3-4.....	380	15	365	6	12	26	287	25	5	-	-	-	4
5-9.....	299	14	285	3	17	1	19	214	16	3	10	-	2
10-19.....	236	4	232	4	4	-	5	20	172	17	10	-	-
20-49.....	282	10	272	2	2	-	1	7	40	189	30	-	1
50 or more.....	201	10	191	-	-	-	-	1	2	17	170	1	-
Mobile home.....	258	5	253	20	-	-	-	-	-	-	-	233	-
Other.....	11	2	9	3	1	1	-	-	-	2	1	-	1

- Represents zero.

Table 17. Comparison of Census and Reinterview Responses for Number of Bedrooms, Total U.S.

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample cases reported as occupied in both census and reinterview. Data are subject to noninterviews and matching problems. Out of 5,178 5-percent long-form addresses sampled from census registers only 3,897, the basis of the data shown below, were interviewed as occupied or vacant in the census. See table I for additional information on the noninterviews and matching problems for the entire Content Reinterview Study)

Reinterview classification	Census classification								
	Total units	Not reported	Number of bedrooms reported in census						
			Total reported	No bedrooms	1 bedroom	2 bedrooms	3 bedrooms	4 bedrooms	5 or more bedrooms
Total units...	3,897	81	3,816	31	539	1,280	1,433	401	132
Not reported.....	23	1	22	1	5	6	8	2	-
Reported.....	3,874	80	3,794	30	534	1,274	1,425	399	132
No bedrooms.....	61	3	58	25	31	1	1	-	-
1 bedroom.....	504	16	488	5	437	42	3	1	-
2 bedrooms.....	1,305	25	1,280	-	47	1,130	91	6	6
3 bedrooms.....	1,466	20	1,446	-	13	86	1,281	56	10
4 bedrooms.....	402	15	387	-	4	9	41	319	14
5 or more bedrooms..	136	1	135	-	2	6	8	17	102

- Represents zero.

Table 18. Comparison of Census and Reinterview Responses for Piped Water, Total U.S.

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data are subject to noninterview and matching problems as shown in table I. Basis for data below is table I, line 2, cols. 2, 3, and 10)

Reinterview classification	Census classification					
	Total units	Not reported	Piped water reported in census			
			Total reported	Hot and cold piped water	Cold piped water only	No piped water
Total units.....	8,456	93	8,363	7,971	193	199
Not reported.....	32	2	30	29	-	1
Reported.....	8,424	91	8,333	7,942	193	198
Hot and cold piped water..	8,043	90	7,953	7,893	48	12
Cold piped water only.....	185	1	184	39	120	25
No piped water.....	196	-	196	10	25	161

- Represents zero.

Table 19. Comparison of Census and Reinterview Responses for Kitchen Facilities, Total U.S.

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units in structures of known size in census reported as being occupied by same household in census and reinterview. Data are subject to noninterviews and matching problems as shown in table I. Basis for data below is table I, line 3, cols. 4 and 6)

Reinterview classification	Census classification					
	Total units	Not reported	Kitchen facilities reported in census			
			Total reported	For exclusive use of household	Also used by another household	No complete kitchen facilities
Total units.....	7,017	18	6,999	6,804	6	189
Not reported.....	46	2	44	42	-	2
Reported.....	6,971	16	6,955	6,762	6	187
Complete kitchen facilities for exclusive use of household.....	6,760	15	6,745	6,706	4	35
Complete kitchen facilities also used by another household.....	12	-	12	11	-	1
No complete kitchen facilities.....	199	1	198	45	2	151

- Represents zero.

Table 20. Comparison of Census and Reinterview Responses for Heating Equipment, Total U.S.

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units reported as occupied in the reinterview. Data are subject to noninterviews and matching problems as shown in table I. Basis for data below is table I, line 3, cols. 2, 3, and 10)

Reinterview classification	Census classification										
	Total units	Not reported	Heating equipment reported in census								
			Total reported	Steam or hot water	Central warm-air	Built-in electric	Floor furnace	Heaters with flue	Heaters without flue	Portable heater	No equipment
Total units.....	7,975	346	7,629	1,403	3,525	346	628	896	442	348	41
Not reported.....	50	4	46	6	24	1	2	6	3	4	-
Reported.....	7,925	342	7,583	1,397	3,501	345	626	890	439	344	41
Steam or hot water.....	1,635	80	1,555	<u>1,281</u>	183	39	10	24	12	6	-
Central warm-air.....	3,765	145	3,620	93	<u>3,190</u>	80	110	112	19	15	1
Built-in electric.....	223	17	206	-	13	<u>179</u>	5	4	1	3	1
Floor furnace.....	746	24	722	7	73	23	<u>454</u>	124	27	14	-
Heaters with flue.....	704	30	674	7	32	8	32	<u>485</u>	69	39	2
Heaters without flue.....	391	12	379	5	5	-	10	<u>84</u>	<u>250</u>	24	1
Portable heater.....	426	31	395	3	5	15	5	57	60	<u>240</u>	10
No equipment.....	35	3	32	1	-	1	-	-	1	3	<u>26</u>

- Represents zero.

Table 21. Comparison of Census and Reinterview Responses for Number of Rooms, Total U.S.

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units reported as occupied in the reinterview. Data are subject to noninterviews and matching problems as shown in table I. Basis for data below is table I, line 3, cols. 2, 3, and 10)

Reinterview classification	Census classification											
	Total units	Not reported	Number of rooms reported in census									
			Total reported	1 room	2 rooms	3 rooms	4 rooms	5 rooms	6 rooms	7 rooms	8 rooms	9 or more rooms
Total units....	7,975	59	7,916	83	213	755	1,591	2,001	1,725	869	408	271
Not reported.....	49	14	35	-	1	2	7	5	10	4	5	1
Reported.....	7,926	45	7,881	83	212	753	1,584	1,996	1,715	865	403	270
1 room.....	69	1	68	<u>49</u>	12	3	1	2	-	-	1	-
2 rooms.....	217	1	216	24	<u>116</u>	59	14	3	-	-	-	-
3 rooms.....	817	9	808	5	<u>59</u>	<u>563</u>	164	13	3	-	1	-
4 rooms.....	1,536	10	1,526	1	16	95	<u>1,123</u>	244	35	10	1	1
5 rooms.....	1,907	11	1,896	2	7	17	<u>211</u>	<u>1,279</u>	323	45	10	2
6 rooms.....	1,710	6	1,704	-	1	10	45	<u>374</u>	<u>1,020</u>	216	31	7
7 rooms.....	931	4	927	-	-	2	14	67	<u>261</u>	<u>424</u>	129	30
8 rooms.....	442	2	440	-	1	2	8	7	55	<u>135</u>	<u>178</u>	54
9 or more rooms..	297	1	296	2	-	2	4	7	18	35	<u>52</u>	<u>176</u>

- Represents zero.

Table 22. Summary Measures of Response Error for Selected Housing Characteristics Estimated from Response-Variance Type Reinterview, Inside SMSA's: 1970 Census

(All estimates multiplied by 100)

Characteristic ¹	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class according to reinterview	Net difference rate ²	95-percent confidence interval for net difference rate
HEATING FUEL					
Gas.....	11	9.4 to 13.6	65.6	1.1	0.1 to 2.0
Electricity.....	25	18.6 to 32.2	4.3	1.2	0.5 to 1.8
Oil, kerosene.....	9	7.0 to 11.0	26.8	-1.8	-2.6 to -1.1
Coal.....	14	8.3 to 24.7	2.0	*-0.1	-0.5 to 0.2
Wood.....	0	0.0 to 28.7	0.3	*0.0	-0.2 to 0.2
Other.....	80	40.1 to 100.0	0.3	*-0.2	-0.4 to 0.1
Not heated.....	19	8.5 to 41.8	0.7	*-0.1	-0.3 to 0.1
L-fold index.....	12	10.1 to 14.2	(X)	(X)	(X)
RENTERS PAYING EXTRA FOR ELECTRICITY					
Paying extra.....	13	10.4 to 17.6	72.3	*-0.1	-1.5 to 1.4
Not paying extra.....	13	10.4 to 17.6	27.7	*0.1	-1.4 to 1.5
RENTERS PAYING EXTRA FOR GAS					
Paying extra.....	16	12.6 to 19.6	53.4	*-0.8	-2.5 to 1.0
Not paying extra.....	16	12.6 to 19.6	46.6	*0.8	-1.0 to 2.5
RENTERS PAYING EXTRA FOR WATER					
Paying extra.....	41	31.0 to 54.2	6.7	*-0.5	-1.9 to 0.9
Not paying extra.....	41	31.0 to 54.2	93.3	*0.5	-0.9 to 1.9
RENTERS PAYING EXTRA FOR OTHER FUELS					
Paying extra.....	51	36.3 to 70.4	5.1	-2.2	-3.5 to -0.9
Not paying extra.....	51	36.3 to 70.4	94.9	2.2	0.9 to 3.5
BATHTUB OR SHOWER FACILITIES					
Bathtub or shower for exclusive use of household.....	27	20.9 to 34.4	97.8	*-0.1	-0.4 to 0.2
Bathtub or shower used also by another household.....	30	21.3 to 43.4	1.0	*-0.1	-0.3 to 0.1
No bathtub or shower.....	34	25.3 to 45.2	1.2	0.2	-0.1 to 0.4
L-fold index.....	30	23.4 to 37.5	(X)	(X)	(X)
FLUSH TOILET FACILITIES					
Flush toilet for exclusive use of household.....	24	18.0 to 31.8	98.1	*0.0	-0.3 to 0.2
Flush toilet also used by another household.....	34	23.9 to 47.3	1.0	*0.0	-0.3 to 0.2
No flush toilet.....	25	17.4 to 37.4	1.0	*0.1	-0.1 to 0.3
L-fold index.....	27	20.4 to 34.9	(X)	(X)	(X)

See footnotes at end of table.

Table 22. Summary Measures of Response Error for Selected Housing Characteristics Estimated from Response-Variance Type Reinterview, Inside SMSA's: 1970 Census—Con.

(All estimates multiplied by 100)

Characteristic ¹	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class according to reinterview	Net difference rate ²	95-percent confidence interval for net difference rate
TELEPHONE AVAILABILITY					
Available.....	34	29.4 to 39.1	94.0	-1.4	-2.1 to -0.8
Not available.....	34	29.4 to 39.1	6.0	1.4	0.8 to 2.1
SEASONAL VACANCY STATUS					
Vacant year round.....	35	20.1 to 60.0	82.1	*2.2	-3.4 to 7.8
Vacant seasonal/migratory.....	35	20.1 to 60.0	17.9	*-2.2	-7.8 to 3.4
YEAR STRUCTURE BUILT					
1969 or later.....	26	19.8 to 32.9	2.7	*0.1	-0.2 to 0.5
1965-1968.....	20	17.2 to 23.6	9.8	*0.3	-0.3 to 0.8
1960-1964.....	28	24.7 to 31.5	12.5	*-0.2	-0.9 to 0.5
1950-1959.....	23	21.1 to 25.8	25.0	*0.1	-0.8 to 1.0
1940-1949.....	41	36.7 to 44.8	12.2	1.0	0.1 to 1.9
1939 or earlier.....	14	12.9 to 16.2	37.8	-1.3	-2.1 to -0.5
L-fold index.....	23	22.0 to 25.0	(X)	(X)	(X)
VALUE OF HOME					
Less than \$5,000.....	55	40.2 to 74.3	1.2	0.8	0.2 to 1.4
\$5,000-\$7,499.....	60	49.5 to 72.6	3.3	1.2	0.3 to 2.1
\$7,500-\$9,999.....	65	56.0 to 75.8	4.0	3.5	2.5 to 4.6
\$10,000-\$12,499.....	66	59.5 to 74.5	9.9	*-0.8	-2.2 to 0.6
\$12,500-\$14,999.....	73	64.6 to 82.1	6.1	3.0	1.7 to 4.3
\$15,000-\$17,499.....	67	60.5 to 74.6	11.5	*-1.3	-2.8 to 0.2
\$17,500-\$19,999.....	68	61.5 to 76.3	8.6	2.8	1.4 to 4.2
\$20,000-\$24,999.....	68	62.6 to 74.1	16.7	*0.0	-1.8 to 1.7
\$25,000-\$34,999.....	45	40.7 to 49.4	23.3	-5.1	-6.6 to -3.5
\$35,000-\$49,999.....	39	32.8 to 45.2	10.7	-3.4	-4.4 to -2.4
\$50,000 or more.....	19	13.6 to 25.9	4.7	-0.7	-1.3 to -0.2
L-fold index.....	58	55.8 to 60.4	(X)	(X)	(X)

X Not applicable.

* Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

¹The universes of analysis for these characteristics are described in table A.

²A negative value of the net difference rate indicates that the estimated percent in class based on census responses is less than the estimated percent in class based on the reinterview responses; a positive value indicates the opposite.

Table 23. Comparison of Census and Reinterview Responses for Heating Fuel, Inside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data for this item collected only for housing units receiving 5-percent census questionnaire. Data shown as numbers of sample cases inside SMSA's reported as occupied in both census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification									
	Total units	Not reported	Type of heating fuel reported in census							
			Total reported	Gas	Elec- tricity	Oil, kero- sene	Coal	Wood	Other	None
Total units....	2,476	70	2,406	1,601	134	596	48	7	4	16
Not reported.....	61	7	54	33	7	9	3	-	1	1
Reported.....	2,415	63	2,352	1,568	127	587	45	7	3	15
Gas.....	1,577	34	1,543	1,496	29	13	3	-	1	1
Electricity.....	105	5	100	9	87	3	-	-	-	1
Oil, kerosene....	645	15	630	53	5	569	2	-	1	-
Coal.....	53	5	48	4	3	1	40	-	-	-
Wood.....	8	1	7	-	-	-	-	7	-	-
Other.....	8	1	7	5	-	1	-	-	1	-
None.....	19	2	17	1	3	-	-	-	-	13

- Represents zero.

Table 24. Comparison of Census and Reinterview Responses for Extra Payment for Electricity, Inside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units inside SMSA's reported as occupied in multiunit structures in the reinterview and occupied in the census. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification				
	Total units	Not reported	Extra payment for electricity reported in census		
			Total reported	Pays extra	Doesn't pay extra
Total units.....	1,461	328	1,133	817	316
Not reported.....	288	210	78	55	23
Reported.....	1,173	118	1,055	762	293
Pays extra.....	846	83	763	734	29
Doesn't pay extra.....	327	35	292	28	264

Table 25. Comparison of Census and Reinterview Responses for Extra Payment for Gas, Inside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units inside SMSA's reported as occupied in multiunit structures in the reinterview and occupied in the census. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification				
	Total units	Not reported	Extra payment for gas reported in census		
			Total reported	Pays extra	Doesn't pay extra
Total units.....	1,461	332	1,129	594	535
Not reported.....	290	209	81	42	39
Reported.....	1,171	123	1,048	552	496
Pays extra.....	615	55	560	<u>515</u>	45
Doesn't pay extra.....	556	68	488	37	<u>451</u>

Table 26. Comparison of Census and Reinterview Responses for Extra Payment for Water, Inside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units inside SMSA's reported as occupied in multiunit structures in the reinterview and occupied in the census. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification				
	Total units	Not reported	Extra payment for water reported in census		
			Total reported	Pays extra	Doesn't pay extra
Total units.....	1,461	338	1,123	70	1,053
Not reported.....	297	209	88	6	82
Reported.....	1,164	129	1,035	64	971
Pays extra.....	84	15	69	<u>41</u>	28
Doesn't pay extra.....	1,080	114	966	23	<u>943</u>

Table 27. Comparison of Census and Reinterview Responses for Extra Payment for Other Fuels, Inside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units inside SMSA's reported as occupied in multiunit structures in the reinterview and occupied in the census. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems.)

Reinterview classification	Census classification				
	Total units	Not reported	Extra payment for other fuels reported in census		
			Total reported	Pays extra	Doesn't pay extra
Total units.....	1,461	385	1,076	33	1,043
Not reported.....	375	221	154	6	148
Reported.....	1,086	164	922	27	895
Pays extra.....	64	17	47	19	28
Doesn't pay extra.....	1,022	147	875	8	867

Table 28. Comparison of Census and Reinterview Responses for Bathtub or Shower Facilities, Inside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample cases inside SMSA's. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification					
	Total units	Not reported	Bathtub and shower facilities reported in census			
			Total reported	For exclusive use of household	Used also by another household	No bathtub or shower
Total units.....	5,445	29	5,416	5,286	54	76
Not reported.....	47	2	45	39	5	1
Reported.....	5,398	27	5,371	5,247	49	75
Bathtub or shower for exclusive use of household.....	5,278	27	5,251	5,217	11	23
Bathtub or shower used also by another household.....	54	-	54	13	36	5
No bathtub or shower...	66	-	66	17	2	47

- Represents zero.

Table 29. Comparison of Census and Reinterview Responses for Flush Toilet Facilities, Inside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample cases inside SMSA's. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification					
	Total units	Not reported	Flush toilet facilities reported in census			
			Total reported	For exclusive use of household	Used also by another household	No flush toilet
Total units.....	5,445	26	5,419	5,308	55	56
Not reported.....	45	1	44	38	5	1
Reported.....	5,400	25	5,375	5,270	50	55
Flush toilet for exclusive use of household.	5,296	25	5,271	5,246	15	10
Flush toilet used also by another household..	52	-	52	13	34	5
No flush toilet.....	52	-	52	11	1	40

- Represents zero.

Table 30. Comparison of Census and Reinterview Responses for Telephone Availability, Inside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units inside SMSA's reported as being occupied by same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification				
	Total units	Not reported	Telephone availability reported in census		
			Total reported	Phone available	Phone not available
Total units.....	4,758	71	4,687	4,337	350
Not reported.....	30	1	29	27	2
Reported.....	4,728	70	4,658	4,310	348
Phone available.....	4,436	59	4,377	4,244	133
Phone not available....	292	11	281	66	215

Table 31. Comparison of Census and Reinterview Responses for Year Structure Built, Inside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample cases inside SMSA's reported as occupied in both census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification								
	Total units	Not reported	Year structure built reported in census						
			Total reported	1969 or later	1965 to 1968	1960 to 1964	1950 to 1959	1940 to 1949	1939 or earlier
Total units...	5,064	187	4,877	135	464	589	1,224	670	1,795
Not reported.....	454	48	406	7	15	38	99	83	164
Reported.....	4,610	139	4,471	128	449	551	1,125	587	1,631
1969 or later.....	128	6	122	<u>94</u>	16	5	2	1	4
1965 to 1968.....	454	16	438	29	<u>363</u>	37	7	-	2
1960 to 1964.....	578	18	560	2	60	<u>420</u>	70	4	4
1950 to 1959.....	1,139	20	1,119	1	8	<u>77</u>	<u>926</u>	85	22
1940 to 1949.....	559	15	544	1	1	5	82	<u>365</u>	90
1939 or earlier.....	1,752	64	1,688	1	1	7	38	132	<u>1,509</u>

- Represents zero.

Table 32. Comparison of Census and Reinterview Responses for Seasonal Vacancy Status, Inside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample cases inside SMSA's reported as vacant in both census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification		
	Total units	Seasonal vacancy status reported in census	
		Vacant year round	Vacant seasonal/migratory
Total units.....	134	113	21
Vacant year round.....	110	<u>105</u>	5
Vacant seasonal/migratory.....	24	8	<u>16</u>

Table 33. Comparison of Census and Reinterview Responses for Value of Home, Inside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of single-family sample units inside SMSA's reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification													
	Total units	Not owned, tenure not reported, or value of home not reported	Value of home reported in census											
			Total reported	Less than \$5,000	\$5,000 to \$7,499	\$7,500 to \$9,999	\$10,000 to \$12,499	\$12,500 to \$14,999	\$15,000 to \$17,499	\$17,500 to \$19,999	\$20,000 to \$24,999	\$25,000 to \$34,999	\$35,000 to \$49,999	\$50,000 or more
Total units..	3,235	583	2,652	65	129	207	247	244	266	297	431	476	189	101
Not reported.....	696	474	222	16	20	23	26	23	18	20	27	34	11	4
Reported.....	2,539	109	2,430	49	109	184	221	221	248	277	404	442	178	97
Less than \$5,000...	31	2	29	18	7	-	2	-	-	-	1	1	-	-
\$5,000 to \$7,499...	83	3	80	14	40	20	2	-	2	1	1	-	-	-
\$7,500 to \$9,999...	104	6	98	9	26	54	9	-	-	-	-	-	-	-
\$10,000 to \$12,499.	251	10	241	6	20	83	92	32	4	2	2	-	-	-
\$12,500 to \$14,999.	153	5	148	-	3	10	59	60	12	3	1	-	-	-
\$15,000 to \$17,499.	293	13	280	2	8	8	34	89	106	24	7	2	-	-
\$17,500 to \$19,999.	215	6	209	-	1	4	11	23	59	93	18	-	-	-
\$20,000 to \$24,999.	415	10	405	-	3	2	11	11	53	124	175	24	1	1
\$25,000 to \$34,999.	588	23	565	-	1	3	1	5	11	29	181	324	9	1
\$35,000 to \$49,999.	273	13	260	-	-	-	-	1	1	1	17	90	142	8
\$50,000 or more....	133	18	115	-	-	-	-	-	-	-	1	1	26	87

- Represents zero.

Table 34. Summary Measures of Response Error for Selected Housing Characteristics Estimated from Response-Bias Type Reinterview, Inside SMSA's: 1970 Census

(All estimates multiplied by 100)

Characteristic ¹	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class according to reinterview	Net difference rate ²	95-percent confidence interval for net difference rate
TENURE					
Owned or being bought.....	2	1.8 to 3.1	65.1	*0.0	-0.4 to 0.3
Cooperative or condominium.....	22	12.2 to 38.1	0.6	*0.1	-0.1 to 0.3
Rented for cash.....	2	1.5 to 2.8	32.8	*0.0	-0.3 to 0.2
Occupied without payment of cash rent.....	22	15.1 to 31.3	1.6	*0.0	-0.3 to 0.3
L-fold index.....	3	2.4 to 3.9	(X)	(X)	(X)
CONTRACT RENT					
Less than \$30.....	42	28.9 to 62.2	3.0	-1.5	-2.2 to -0.7
\$30 to \$39.....	17	10.0 to 30.0	2.7	*-0.1	-0.6 to 0.5
\$40 to \$49.....	14	8.9 to 21.7	5.5	*-0.3	-0.9 to 0.4
\$50 to \$59.....	12	7.9 to 19.1	6.1	*0.0	-0.6 to 0.6
\$60 to \$69.....	10	7.0 to 15.1	10.5	*-0.4	-1.1 to 0.4
\$70 to \$79.....	12	8.4 to 18.6	7.6	*0.1	-0.7 to 0.8
\$80 to \$89.....	12	8.2 to 17.4	8.9	*0.3	-0.5 to 1.0
\$90 to \$99.....	18	13.1 to 25.8	7.5	*-0.5	-1.3 to 0.4
\$100 to \$119.....	17	13.0 to 22.1	13.1	1.2	0.1 to 2.3
\$120 to \$149.....	10	7.4 to 13.6	18.1	*-0.1	-1.1 to 0.8
\$150 to \$199.....	9	6.5 to 13.8	11.5	*0.6	-0.2 to 1.3
\$200 to \$249.....	12	6.1 to 22.6	2.5	0.5	0.1 to 0.9
\$250 to \$299.....	5	1.3 to 18.0	1.6	-0.1	-0.5 to 0.1
\$300 or more.....	11	4.7 to 26.9	1.4	*0.4	0.0 to 0.8
L-fold index.....	13	11.5 to 15.3	(X)	(X)	(X)
NUMBER OF UNITS IN STRUCTURE					
1 detached.....	4	3.3 to 4.9	62.8	*0.0	-0.3 to 0.4
1 attached.....	30	25.2 to 35.8	4.2	*0.1	-0.3 to 0.5
2.....	16	13.9 to 19.4	9.1	*0.0	-0.5 to 0.4
3-4.....	22	18.4 to 26.7	5.2	*-0.1	-0.5 to 0.3
5-9.....	26	22.0 to 31.7	4.6	*0.0	-0.4 to 0.4
10-19.....	29	24.2 to 35.2	3.8	*0.0	-0.4 to 0.4
20-49.....	25	20.8 to 30.5	4.7	-0.7	-1.1 to -0.3
50 or more.....	17	13.6 to 22.2	3.5	0.5	0.2 to 0.8
Mobile home.....	2	0.7 to 4.8	2.2	*-0.1	-0.2 to 0.0
Other.....	100	64.9 to 100.0	0.1	0.3	0.1 to 0.5
L-fold index.....	15	13.6 to 16.4	(X)	(X)	(X)
NUMBER OF BEDROOMS					
No bedroom.....	46	32.9 to 64.5	2.1	-1.0	-1.5 to -0.5
1 bedroom.....	15	12.1 to 18.2	14.6	1.4	0.6 to 2.2
2 bedrooms.....	15	13.1 to 17.9	32.3	*-0.4	-1.5 to 0.6
3 bedrooms.....	16	13.5 to 18.2	37.9	*-0.5	-1.6 to 0.6
4 bedrooms.....	19	15.3 to 23.6	9.6	*0.5	-0.2 to 1.3
5 or more bedrooms.....	22	15.7 to 30.6	3.5	*0.0	-0.5 to 0.5
L-fold index.....	17	15.0 to 18.7	(X)	(X)	(X)
PIPED WATER					
Hot and cold piped water.....	24	17.2 to 32.9	98.6	*-0.2	-0.5 to 0.0
Cold water only.....	35	26.0 to 48.4	1.0	*0.1	-0.1 to 0.4
No piped water.....	25	13.6 to 44.5	0.4	*0.1	0.0 to 0.2
L-fold index.....	28	20.9 to 37.8	(X)	(X)	(X)

See footnotes at end of table.

Table 34. Summary Measures of Response Error for Selected Housing Characteristics Estimated from Response-Bias Type Reinterview, Inside SMSA's: 1970 Census—Con.

(All estimates multiplied by 100)

Characteristic ¹	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class according to reinterview	Net difference rate ²	95-percent confidence interval for net difference rate
KITCHEN FACILITIES					
Complete facilities for exclusive use of household.....	41	29.5 to 55.9	98.8	*0.3	0.0 to 0.6
Complete facilities also used by another household.....	100	59.0 to 100.0	0.2	*-0.1	-0.3 to 0.1
No complete facilities.....	38	26.4 to 53.9	1.0	*-0.2	-0.5 to 0.1
L-fold index.....	44	32.1 to 59.4	(X)	(X)	(X)
HEATING EQUIPMENT					
Steam or hot water.....	16	14.2 to 17.9	25.1	-2.3	-3.0 to -1.7
Central warm-air.....	19	17.1 to 20.6	50.0	-1.3	-2.1 to -0.4
Built-in electric.....	39	33.0 to 46.8	2.5	2.0	1.5 to 2.5
Floor furnace.....	34	30.4 to 38.6	10.0	-2.0	-2.7 to -1.3
Heater with flue.....	51	45.6 to 56.5	5.8	3.4	2.7 to 4.2
Heater without flue.....	51	44.0 to 60.1	2.9	0.9	0.3 to 1.4
Portable heater.....	52	43.9 to 61.9	3.1	-0.8	-1.3 to -0.3
No equipment.....	27	16.7 to 42.5	0.6	0.1	-0.1 to 0.3
L-fold index.....	27	25.5 to 28.7	(X)	(X)	(X)
NUMBER OF ROOMS					
1 room.....	35	25.6 to 47.4	1.1	*0.2	0.0 to 0.5
2 rooms.....	48	40.6 to 56.3	3.1	*0.1	-0.4 to 0.6
3 rooms.....	29	25.5 to 32.3	11.3	-0.9	-1.5 to -0.2
4 rooms.....	32	29.2 to 34.9	19.2	*0.5	-0.4 to 1.4
5 rooms.....	44	41.6 to 47.3	22.3	1.5	0.4 to 2.6
6 rooms.....	51	47.6 to 53.8	21.4	*0.4	-0.7 to 1.6
7 rooms.....	58	53.8 to 62.6	12.4	-1.1	-2.1 to -0.2
8 rooms.....	59	52.5 to 66.0	5.6	*-0.4	-1.1 to 0.3
9 or more rooms.....	36	30.2 to 43.1	3.7	*-0.4	-0.8 to 0.1
L-fold index.....	44	42.1 to 45.4	(X)	(X)	(X)

X Not applicable.

* Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

¹The universes of analysis for these characteristics are described in table E.

²A negative value of the net difference rate indicates that the estimated percent in class based on census responses is less than the estimated percent in class based on the reinterview responses; a positive value indicates the opposite.

Table 35. Comparison of Census and Reinterview Responses for Tenure, Inside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units inside SMSA's reported as being occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification						
	Total units	Not reported	Tenure reported in census				
			Total reported	Owned	Cooperative or condominium	Rented for cash	Occupied without payment of cash rent
Total units.....	4,758	30	4,728	3,135	30	1,492	71
Not reported.....	207	5	202	193	-	8	1
Reported.....	4,551	25	4,526	2,942	30	1,484	70
Owned.....	2,963	19	2,944	2,919	5	9	11
Cooperative or condominium.....	26	-	26	2	22	2	-
Rented for cash.....	1,491	5	1,486	14	3	1,465	4
Occupied without payment of cash rent.....	71	1	70	7	-	8	55

- Represents zero.

Table 36. Comparison of Census and Reinterview Responses for Contract Rent, Inside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units inside SMSA's reported as renter-occupied in both census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification																
	Total units	NA, not rented, or not reported	Contract rent reported in census														
			Total reported	\$0 to \$30	\$30 to \$39	\$40 to \$49	\$50 to \$59	\$60 to \$69	\$70 to \$79	\$80 to \$89	\$90 to \$99	\$100 to \$119	\$120 to \$149	\$150 to \$199	\$200 to \$249	\$250 to \$299	\$300 or more
Total units.....	4,576	3,121	1,455	24	41	74	90	147	111	134	101	206	260	177	44	20	26
NA, not rented, or not reported.....	3,105	3,072	33	2	3	-	3	3	2	3	2	3	5	5	1	-	1
Reported.....	1,471	49	1,422	22	38	74	87	144	109	131	99	203	255	172	43	20	25
\$0 to \$30.....	61	18	43	19	4	-	1	1	2	-	-	10	1	3	-	-	2
\$30 to \$39.....	40	1	39	1	32	4	1	-	-	-	-	1	-	-	-	-	-
\$40 to \$49.....	78	-	78	1	1	66	3	1	2	1	1	-	1	-	-	-	1
\$50 to \$59.....	91	4	87	1	-	1	77	3	1	2	1	-	1	-	-	-	-
\$60 to \$69.....	152	3	149	-	-	2	2	133	6	3	2	1	-	-	-	-	-
\$70 to \$79.....	110	2	108	-	-	-	1	2	96	5	2	2	-	-	-	-	-
\$80 to \$89.....	132	5	127	-	-	1	1	2	1	115	4	3	-	-	-	-	-
\$90 to \$99.....	109	3	106	-	-	-	-	-	1	4	85	10	4	1	-	-	1
\$100 to \$119.....	191	5	186	-	1	-	1	1	-	1	4	166	11	1	-	-	-
\$120 to \$149.....	261	4	257	-	-	-	-	1	-	-	-	9	235	12	-	-	-
\$150 to \$199.....	168	4	164	-	-	-	-	-	-	-	-	1	2	154	7	-	-
\$200 to \$249.....	36	-	36	-	-	-	-	-	-	-	-	-	-	1	35	-	-
\$250 to \$299.....	22	-	22	-	-	-	-	-	-	-	-	-	-	-	1	20	1
\$300 or more.....	20	-	20	-	-	-	-	-	-	-	-	-	-	-	-	-	20

- Represents zero.

Table 37. Comparison of Census and Reinterview Responses for Number of Units in Structure, Inside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample cases inside SMSA's. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification												
	Total units	Not reported	Number of units in structure reported in census										
			Total reported	1 detached	1 attached	2	3-4	5-9	10-19	20-49	50 or more	Mobile home	Other
Total units.....	5,445	139	5,306	3,333	229	481	270	242	203	209	211	110	18
Not reported.....	1	-	1	1	-	-	-	-	-	-	-	-	-
Reported.....	5,444	139	5,305	3,332	229	481	270	242	203	209	211	110	18
1 detached.....	3,406	76	3,330	<u>3,281</u>	14	22	2	1	-	1	-	-	9
1 attached.....	230	7	223	11	<u>161</u>	25	15	9	1	-	-	-	1
2.....	493	10	483	26	<u>23</u>	<u>410</u>	17	4	1	-	-	-	2
3-4.....	287	10	277	2	10	<u>22</u>	<u>216</u>	19	5	-	-	-	3
5-9.....	253	11	242	2	15	1	<u>14</u>	<u>181</u>	14	3	10	-	2
10-19.....	207	4	203	4	4	-	5	<u>20</u>	<u>146</u>	15	9	-	-
20-49.....	257	10	247	2	2	-	1	7	<u>34</u>	<u>173</u>	27	-	1
50 or more.....	191	8	183	-	-	-	-	1	2	<u>16</u>	<u>164</u>	-	-
Mobile homes.....	116	2	114	4	-	-	-	-	-	-	-	<u>110</u>	-
Other.....	4	1	3	-	-	1	-	-	-	1	1	-	-

- Represents zero.

Table 38. Comparison of Census and Reinterview Responses for Number of Bedrooms, Inside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data for this item collected only for housing units receiving 5-percent census questionnaire. Data shown as numbers of sample cases inside SMSA's reported as occupied in the reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification								
	Total units	Not reported	Number of bedrooms reported in census						
			Total reported	No bedrooms	1 bedroom	2 bedrooms	3 bedrooms	4 bedrooms	5 or more bedrooms
Total units...	2,534	54	2,480	27	400	790	928	250	85
Not reported.....	19	1	18	1	5	4	7	1	-
Reported.....	2,515	53	2,462	26	395	786	921	249	85
No bedrooms.....	54	3	51	<u>21</u>	29	1	-	-	-
1 bedroom.....	373	13	360	5	<u>330</u>	24	1	-	-
2 bedrooms.....	809	13	796	-	25	<u>709</u>	56	3	3
3 bedrooms.....	947	13	934	-	8	47	<u>837</u>	37	5
4 bedrooms.....	247	11	236	-	2	2	21	<u>201</u>	10
5 or more bedrooms..	85	-	85	-	1	3	6	8	<u>67</u>

- Represents zero.

Table 39. Comparison of Census and Reinterview Responses for Piped Water, Inside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample cases inside SMSA's. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification					
	Total units	Not reported	Piped water reported in census			
			Total reported	Hot and cold piped water	Cold piped water only	No piped water
Total units.....	5,445	41	5,404	5,316	62	26
Not reported.....	26	2	24	23	-	1
Reported.....	5,419	39	5,380	5,293	62	25
Hot and cold piped water..	5,344	39	5,305	5,280	22	3
Cold piped water only.....	55	-	55	12	38	5
No piped water.....	20	-	20	1	2	17

- Represents zero.

Table 40. Comparison of Census and Reinterview Responses for Kitchen Facilities, Inside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units inside SMSA's reported as being occupied by same household in census and re-interview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification					
	Total units	Not reported	Kitchen facilities reported in census			
			Total reported	For exclusive use of household	Also used by another household	No complete kitchen facilities
Total units.....	4,576	9	4,567	4,523	5	39
Not reported.....	34	-	34	32	-	2
Reported.....	4,542	9	4,533	4,491	5	37
Complete kitchen facilities for exclusive use of household.....	4,487	9	4,478	4,465	3	10
Complete kitchen facilities also used by another household.....	9	-	9	8	-	1
No complete kitchen facilities.....	46	-	46	18	2	26

- Represents zero.

Table 41. Comparison of Census and Reinterview Responses for Heating Equipment, Inside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units inside SMSA's reported as occupied in the reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification										
	Total units	Not reported	Heating equipment reported in census								
			Total reported	Steam or hot water	Central warm-air	Built-in electric	Floor furnace	Heaters with flue	Heaters without flue	Portable heater	No equipment
Total units.....	5,186	250	4,936	1,123	2,404	221	394	455	187	115	37
Not reported.....	35	4	31	6	16	1	2	4	1	1	-
Reported.....	5,151	246	4,905	1,117	2,388	220	392	451	186	114	37
Steam or hot water.....	1,299	67	1,232	<u>1,032</u>	126	27	9	23	10	5	-
Central warm-air.....	2,561	111	2,450	66	<u>2,189</u>	55	54	69	10	6	1
Built-in electric.....	131	9	122	-	10	<u>106</u>	-	2	1	2	1
Floor furnace.....	504	15	489	6	42	19	<u>303</u>	93	22	4	-
Heaters with flue.....	307	24	283	5	18	5	19	<u>194</u>	23	18	1
Heaters without flue.....	148	4	144	4	1	-	3	<u>42</u>	<u>83</u>	10	1
Portable heater.....	168	14	154	3	2	7	4	28	<u>36</u>	<u>66</u>	8
No equipment.....	33	2	31	1	-	1	-	-	1	3	<u>25</u>

- Represents zero.

Table 42. Comparison of Census and Reinterview Responses for Number of Rooms, Inside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units inside SMSA's reported as occupied in the reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification											
	Total units	Not reported	Number of rooms reported in census									
			Total reported	1 room	2 rooms	3 rooms	4 rooms	5 rooms	6 rooms	7 rooms	8 rooms	9 or more rooms
Total units....	5,186	30	5,156	68	165	535	1,014	1,223	1,130	581	266	174
Not reported.....	37	2	35	1	1	2	5	5	12	4	3	2
Reported.....	5,149	28	5,121	67	164	533	1,009	1,218	1,118	577	263	172
1 room.....	56	1	55	<u>40</u>	11	3	1	-	-	-	-	-
2 rooms.....	161	1	160	19	87	44	8	2	-	-	-	-
3 rooms.....	584	7	577	4	<u>46</u>	<u>413</u>	106	7	1	-	-	-
4 rooms.....	989	6	983	1	13	<u>53</u>	<u>740</u>	154	17	4	1	-
5 rooms.....	1,147	6	1,141	1	5	12	<u>114</u>	<u>777</u>	197	29	4	2
6 rooms.....	1,097	1	1,096	-	1	5	26	<u>231</u>	<u>668</u>	140	20	5
7 rooms.....	639	4	635	-	-	1	8	39	<u>185</u>	<u>296</u>	88	18
8 rooms.....	285	1	284	-	1	1	4	4	36	<u>88</u>	<u>121</u>	29
9 or more rooms..	191	1	190	2	-	1	2	4	14	20	<u>29</u>	<u>118</u>

- Represents zero.

Table 43. Summary Measures of Response Error for Selected Housing Characteristics Estimated from Response-Variance Type Reinterview, Outside SMSA's: 1970 Census

(All estimates multiplied by 100)

Characteristic ¹	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class according to reinterview	Net difference rate ²	95-percent confidence interval for net difference rate
HEATING FUEL					
Gas.....	9	6.8 to 11.8	55.5	*-1.0	-2.3 to 0.2
Electricity.....	19	12.7 to 27.3	6.0	1.3	0.4 to 2.2
Oil, kerosene.....	9	6.3 to 11.8	28.4	*-0.8	-1.9 to 0.3
Coal.....	12	7.3 to 20.2	5.4	*0.4	-0.3 to 1.1
Wood.....	21	13.3 to 31.7	4.7	*-0.3	-1.1 to 0.5
Other.....	(S)	(S)	0.1	(S)	(S)
Not heated.....	(S)	(S)	0.0	(S)	(S)
L-fold index.....	11	9.1 to 14.1	(X)	(X)	(X)
RENTERS PAYING EXTRA FOR ELECTRICITY					
Paying extra.....	18	9.5 to 33.1	74.2	*0.0	-4.5 to 4.5
Not paying extra.....	18	9.5 to 33.1	25.8	*0.0	-4.5 to 4.5
RENTERS PAYING EXTRA FOR GAS					
Paying extra.....	33	23.4 to 48.6	46.4	*-2.1	-9.1 to 4.9
Not paying extra.....	33	23.4 to 48.6	53.6	*2.1	-4.9 to 9.1
RENTERS PAYING EXTRA FOR WATER					
Paying extra.....	37	24.9 to 57.5	24.8	*-5.7	-11.9 to 0.5
Not paying extra.....	37	24.9 to 57.5	75.2	*5.7	-0.5 to 11.9
RENTERS PAYING EXTRA FOR OTHER FUELS					
Paying extra.....	37	23.7 to 61.0	19.5	*-3.1	-9.2 to 2.9
Not paying extra.....	37	23.7 to 61.0	80.5	*3.1	-2.9 to 9.2
BATHTUB OR SHOWER FACILITIES					
Bathtub or shower for exclusive use of household.....	14	10.8 to 17.4	89.5	*-0.2	-0.8 to 0.4
Bathtub or shower used also by another household.....	40	20.1 to 80.3	0.4	*-0.1	-0.3 to 0.2
No bathtub or shower.....	13	10.1 to 16.6	10.1	*0.3	-0.3 to 0.9
L-fold index.....	14	11.0 to 17.5	(X)	(X)	(X)
FLUSH TOILET FACILITIES					
Flush toilet for exclusive use of household.....	15	11.9 to 19.2	90.8	*-0.2	-0.8 to 0.4
Flush toilet also used by another household.....	53	29.0 to 95.3	0.4	*0.0	-0.3 to 0.2
No flush toilet.....	14	11.0 to 18.2	8.8	*0.3	-0.3 to 0.8
L-fold index.....	16	12.3 to 19.6	(X)	(X)	(X)

See footnotes at end of table.

Table 43. Summary Measures of Response Error for Selected Housing Characteristics Estimated from Response-Variance Type Reinterview, Outside SMSA's: 1970 Census—Con.

(All estimates multiplied by 100)

Characteristic ¹	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class according to reinterview	Net difference rate ²	95-percent confidence interval for net difference rate
TELEPHONE AVAILABILITY					
Available.....	15	11.8 to 18.0	84.6	*-0.1	-0.9 to 0.7
Not available.....	15	11.8 to 18.0	15.1	*0.1	-0.7 to 0.9
SEASONAL VACANCY STATUS					
Vacant year round.....	32	24.3 to 42.8	46.2	12.2	7.0 to 17.3
Vacant seasonal/migratory.....	32	24.3 to 42.8	53.9	-12.2	-17.3 to -7.0
YEAR STRUCTURE BUILT					
1969 or later.....	32	23.1 to 43.4	3.0	*-0.4	-0.9 to 0.2
1965-1968.....	24	19.6 to 29.7	9.1	*0.0	-0.9 to 0.8
1960-1964.....	31	26.0 to 36.4	11.1	*0.4	-0.7 to 1.4
1950-1959.....	32	28.7 to 36.8	19.6	*-0.7	-2.1 to 0.6
1940-1949.....	51	44.8 to 57.5	10.8	*0.7	-0.6 to 2.0
1939 or earlier.....	19	16.5 to 21.6	46.4	*0.0	-1.2 to 1.3
L-fold index.....	29	26.8 to 31.5	(X)	(X)	(X)
VALUE OF HOME					
Less than \$5,000.....	38	30.8 to 47.2	9.7	3.5	1.9 to 5.2
\$5,000-\$7,499.....	65	55.4 to 76.1	9.9	*1.2	-0.9 to 3.3
\$7,500-\$9,999.....	70	60.6 to 81.1	10.4	*2.1	-0.1 to 4.4
\$10,000-\$12,499.....	65	56.5 to 74.1	16.0	-3.1	-5.5 to -0.7
\$12,500-\$14,999.....	76	64.9 to 89.1	6.1	5.4	3.3 to 7.5
\$15,000-\$17,499.....	64	54.9 to 75.1	12.8	-3.7	-5.8 to -1.6
\$17,500-\$19,999.....	76	62.0 to 92.1	5.4	2.0	0.2 to 3.7
\$20,000-\$24,999.....	66	56.5 to 77.3	11.4	*-1.7	-3.8 to 0.4
\$25,000-\$34,999.....	51	42.2 to 61.8	12.5	-3.7	-5.6 to -1.9
\$35,000-\$49,999.....	49	35.4 to 66.9	4.7	-2.0	-3.2 to -0.9
\$50,000 or more.....	25	11.4 to 56.0	1.1	*0.0	-0.5 to 0.5
L-fold index.....	62	58.4 to 65.0	(X)	(X)	(X)

X Not applicable.

* Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

S Does not meet publication standards.

¹The universes of analysis for these characteristics are described in table A.

²A negative value of the net difference rate indicates that the estimated percent in class based on census responses is less than the estimated percent in class based on the reinterview responses; a positive value indicates the opposite.

Table 44. Comparison of Census and Reinterview Responses for Heating Fuel, Outside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data for this item collected only for housing units receiving 5-percent census questionnaire. Data shown as numbers of sample cases outside SMSA's reported as occupied in both census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification									
	Total units	Not reported	Type of heating fuel reported in census							
			Total reported	Gas	Elec- tricity	Oil, kero- sene	Coal	Wood	Other	None
Total units.....	1,214	28	1,186	645	87	326	69	54	3	2
Not reported.....	12	1	11	5	2	1	1	2	-	-
Reported.....	1,202	27	1,175	640	85	325	68	52	3	2
Gas.....	665	13	652	620	12	9	3	6	1	1
Electricity.....	73	3	70	4	64	2	-	-	-	-
Oil, kerosene.....	340	6	334	10	7	309	5	1	2	-
Coal.....	66	3	63	-	-	2	58	2	-	1
Wood.....	57	2	55	6	2	2	2	43	-	-
Other.....	1	-	1	-	-	1	-	-	-	-
None.....	-	-	-	-	-	-	-	-	-	-

- Represents zero.

Table 45. Comparison of Census and Reinterview Responses for Extra Payment for Electricity, Outside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units outside SMSA's reported as occupied in multiunit structures in the reinterview and occupied in the census. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification				
	Total units	Not reported	Extra payment for electricity reported in census		
			Total reported	Pays extra	Doesn't pay extra
Total units.....	248	92	156	117	39
Not reported.....	68	59	9	8	1
Reported.....	180	33	147	109	38
Pays extra.....	136	27	109	104	5
Doesn't pay extra.....	44	6	38	5	33

Table 46. Comparison of Census and Reinterview Responses for Extra Payment for Gas, Outside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units outside SMSA's reported as occupied in multiunit structures in the reinterview and occupied in the census. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification				
	Total units	Not reported	Extra payment for gas reported in census		
			Total reported	Pays extra	Doesn't pay extra
Total units.....	248	95	153	67	86
Not reported.....	73	60	13	5	8
Reported.....	175	35	140	62	78
Pays extra.....	85	20	65	<u>52</u>	13
Doesn't pay extra.....	90	15	75	10	<u>65</u>

Table 47. Comparison of Census and Reinterview Responses for Extra Payment for Water, Outside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units outside SMSA's reported as occupied in multiunit structures in the reinterview and occupied in the census. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification				
	Total units	Not reported	Extra payment for water reported in census		
			Total reported	Pays extra	Doesn't pay extra
Total units.....	248	95	153	28	125
Not reported.....	71	59	12	1	11
Reported.....	177	36	141	27	114
Pays extra.....	52	17	35	<u>22</u>	13
Doesn't pay extra.....	125	19	106	5	<u>101</u>

Table 48. Comparison of Census and Reinterview Responses for Extra Payment for Other Fuels, Outside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units outside SMSA's reported as occupied in multiunit structures in the reinterview and occupied in the census. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification				
	Total units	Not reported	Extra payment for other fuels reported in census		
			Total reported	Pays extra	Doesn't pay extra
Total units.....	248	98	150	23	127
Not reported.....	86	64	22	2	20
Reported.....	162	34	128	21	107
Pays extra.....	32	7	25	<u>16</u>	9
Doesn't pay extra.....	130	27	103	5	<u>98</u>

Table 49. Comparison of Census and Reinterview Responses for Bathtub or Shower Facilities, Outside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample cases outside SMSA's. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification					
	Total units	Not reported	Bathtub and shower facilities reported in census			
			Total reported	For exclusive use of household	Used also by another household	No bathtub or shower
Total units.....	2,775	17	2,758	2,464	10	284
Not reported.....	16	-	16	14	1	1
Reported.....	2,759	17	2,742	2,450	9	283
Bathtub or shower for exclusive use of household.....	2,469	14	2,455	<u>2,417</u>	2	36
Bathtub or shower used also by another household.....	11	-	11	5	<u>6</u>	-
No bathtub or shower...	279	3	276	28	1	<u>247</u>

- Represents zero.

Table 50. Comparison of Census and Reinterview Responses for Flush Toilet Facilities, Outside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample cases outside SMSA's. See paragraph 4 of limitations sections of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification					
	Total units	Not reported	Flush toilet facilities reported in census			
			Total reported	For exclusive use of household	Used also by another household	No flush toilet
Total units.....	2,775	16	2,759	2,501	10	248
Not reported.....	11	-	11	11	-	-
Reported.....	2,764	16	2,748	2,490	10	248
Flush toilet for exclusive use of household.	2,509	13	2,496	2,458	3	35
Flush toilet used also by another household..	11	-	11	6	5	-
No flush toilet.....	244	3	241	26	2	213

- Represents zero.

Table 51. Comparison of Census and Reinterview Responses for Telephone Availability, Outside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units outside SMSA's reported as being occupied by same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification				
	Total units	Not reported	Telephone availability reported in census		
			Total reported	Phone available	Phone not available
Total units.....	2,412	25	2,387	2,025	362
Not reported.....	8	-	8	7	1
Reported.....	2,404	25	2,379	2,018	361
Phone available.....	2,039	18	2,021	1,975	46
Phone not available.....	365	7	358	43	315

Table 52. Comparison of Census and Reinterview Responses for Year Structure Built, Outside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample cases outside SMSA's reported as occupied in both census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification								
	Total units	Not reported	Year structure built reported in census						
			Total reported	1969 or later	1965 to 1968	1960 to 1964	1950 to 1959	1940 to 1949	1939 or earlier
Total units..	2,507	62	2,445	62	213	273	459	296	1,142
Not reported.....	166	11	155	1	6	10	27	33	78
Reported.....	2,341	51	2,290	61	207	263	432	263	1,064
1969 or later.....	70	1	69	45	13	3	3	1	4
1965 to 1968.....	211	3	208	13	162	23	5	1	4
1960 to 1968.....	260	6	254	1	21	188	32	2	10
1950 to 1959.....	461	12	449	1	9	42	325	44	28
1940 to 1949.....	250	3	247	1	1	4	39	140	62
1939 or earlier.....	1,089	26	1,063	-	1	3	28	75	956

- Represents zero.

Table 53. Comparison of Census and Reinterview Responses for Seasonal Vacancy Status, Outside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as number os sample cases outside SMSA'S re-reported as vacant in both census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification		
	Total units	Seasonal vacancy status reported in census	
		Vacant year round	Vacant seasonal/migratory
Total units.....	247	144	103
Vacant year round.....	114	109	5
Vacant seasonal/migratory.....	133	35	98

Table 54. Comparison of Census and Reinterview Responses for Value of Home, Outside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of single-family sample units outside SMSA's reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification													
	Total units	Not owned, tenure not reported, or value of home not reported	Value of home reported in census											
			Total reported	Less than \$5,000	\$5,000 to \$7,499	\$7,500 to \$9,999	\$10,000 to \$12,499	\$12,500 to \$14,999	\$15,000 to \$17,499	\$17,500 to \$19,999	\$20,000 to \$24,999	\$25,000 to \$34,999	\$35,000 to \$49,999	\$50,000 or more
Total units..	2,003	770	1,233	167	139	153	159	139	107	88	118	115	33	15
Not reported.....	680	577	103	17	13	12	13	9	4	5	8	16	3	3
Reported.....	1,323	193	1,130	150	126	141	146	130	103	83	110	99	30	12
Less than \$5,000...	134	24	110	86	19	2	1	-	1	1	-	-	-	-
\$5,000 to \$7,499...	128	16	112	41	50	17	2	-	2	-	-	-	-	-
\$7,500 to \$9,999...	124	7	117	13	39	49	13	2	1	-	-	-	-	-
\$10,000 to \$12,499.	217	36	181	7	11	55	73	22	8	4	-	-	-	1
\$12,500 to \$14,999.	74	5	69	1	-	5	27	30	4	-	2	-	-	-
\$15,000 to \$17,499.	162	17	145	2	5	5	15	50	53	12	2	1	-	-
\$17,500 to \$19,999.	67	6	61	-	1	1	5	13	16	21	1	2	1	-
\$20,000 to \$24,999.	146	17	129	-	1	3	8	9	14	37	49	7	1	-
\$25,000 to \$34,999.	168	27	141	-	-	4	2	3	4	6	54	65	3	-
\$35,000 to \$49,999.	70	17	53	-	-	-	-	1	-	2	2	24	22	2
\$50,000 or more....	33	21	12	-	-	-	-	-	-	-	-	-	3	9

- Represents zero.

Table 55. Summary Measures of Response Error for Selected Housing Characteristics Estimated from Response-Bias Type Reinterview, Outside SMSA's: 1970 Census

(All estimates multiplied by 100)

Characteristic ¹	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class according to reinterview	Net difference rate ²	95-percent confidence interval for net difference rate
TENURE					
Owned or being bought.....	6	4.7 to 8.1	75.6	*-0.1	-0.8 to 0.5
Cooperative or condominium.....	(S)	(S)	0.0	(S)	(S)
Rented for cash.....	5	3.3 to 6.6	19.0	-0.6	-1.1 to -0.1
Occupied without payment of cash rent.....	21	16.1 to 27.6	5.5	0.7	0.1 to 1.3
L-fold index.....	8	6.1 to 9.8	(X)	(X)	(X)
CONTRACT RENT					
Less than \$30.....	11	6.3 to 20.6	15.2	*-1.8	-3.5 to 0.0
\$30 to \$39.....	5	2.1 to 14.3	10.4	*0.0	-1.1 to 1.1
\$40 to \$49.....	14	7.6 to 23.9	13.4	*-1.0	-2.8 to 0.8
\$50 to \$59.....	11	6.0 to 18.6	17.2	*0.5	-1.3 to 2.3
\$60 to \$69.....	5	2.0 to 13.4	10.8	*0.5	-0.6 to 1.6
\$70 to \$79.....	5	1.7 to 15.5	7.9	*0.3	-0.8 to 1.3
\$80 to \$89.....	16	8.2 to 32.9	6.3	*0.5	-1.0 to 2.0
\$90 to \$99.....	21	7.8 to 53.7	2.5	*0.0	-1.1 to 1.1
\$100 to \$119.....	16	7.9 to 34.5	5.6	*0.3	-1.2 to 1.7
\$120 to \$149.....	18	8.9 to 35.5	5.8	*0.5	-1.0 to 2.0
\$150 to \$199.....	18	7.5 to 42.6	3.5	*0.3	-1.0 to 1.5
\$200 to \$249.....	0	0.0 to 40.5	1.3	*0.0	-1.0 to 1.0
\$250 to \$299.....	(S)	(S)	0.0	(S)	(S)
\$300 or more.....	(S)	(S)	0.0	(S)	(S)
L-fold index.....	11	8.1 to 15.3	(X)	(X)	(X)
NUMBER OF UNITS IN STRUCTURE					
1 detached.....	8	6.5 to 10.7	82.7	*0.5	-0.1 to 1.1
1 attached.....	74	53.4 to 100.0	1.0	*-0.1	-0.5 to 0.4
2.....	19	14.4 to 24.7	5.9	*-0.4	-1.0 to 0.2
3-4.....	19	12.6 to 27.4	2.7	*-0.1	-0.5 to 0.3
5-9.....	28	18.1 to 43.9	1.3	*0.1	-0.3 to 0.4
10-19.....	20	10.5 to 38.8	0.7	*0.2	-0.1 to 0.4
20-49.....	25	12.6 to 50.3	0.7	*-0.2	-0.4 to 0.1
50 or more.....	(S)	(S)	0.1	(S)	(S)
Mobile home.....	9	5.7 to 13.5	4.8	*-0.3	-0.6 to 0.1
Other.....	85	46.8 to 100.0	0.2	0.1	-0.1 to 0.4
L-fold index.....	15	12.9 to 18.4	(X)	(X)	(X)
NUMBER OF BEDROOMS					
No bedroom.....	(S)	(S)	0.4	(S)	(S)
1 bedroom.....	24	17.8 to 31.3	9.2	*0.7	-0.5 to 1.8
2 bedrooms.....	21	17.6 to 25.3	36.9	*0.6	-1.2 to 2.4
3 bedrooms.....	21	17.1 to 24.7	38.4	*-0.7	-2.5 to 1.1
4 bedrooms.....	25	19.6 to 32.6	11.2	*0.0	-1.3 to 1.3
5 or more bedrooms.....	29	19.9 to 43.4	3.9	*-0.3	-1.2 to 0.5
L-fold index.....	22	19.5 to 25.5	(X)	(X)	(X)
PIPED WATER					
Hot and cold piped water.....	13	10.2 to 16.5	89.4	*0.0	-0.6 to 0.6
Cold water only.....	38	30.6 to 46.6	4.6	*0.1	-0.6 to 0.8
No piped water.....	18	14.2 to 24.0	6.1	*0.0	-0.6 to 0.5
L-fold index.....	20	16.6 to 24.4	(X)	(X)	(X)

See footnotes at end of table.

Table 55. Summary Measures of Response Error for Selected Housing Characteristics Estimated from Response-Bias Type Reinterview, Outside SMSA's: 1970 Census—Con.

(All estimates multiplied by 100)

Characteristic ¹	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class according to reinterview	Net difference rate ²	95-percent confidence interval for net difference rate
KITCHEN FACILITIES					
Complete facilities for exclusive use of household.....	19	14.7 to 25.5	93.4	*0.1	-0.5 to 0.8
Complete facilities also used by another household.....	(S)	(S)	0.1	(S)	(S)
No complete facilities.....	18	13.6 to 24.1	6.5	*0.0	-0.7 to 0.6
L-fold index.....	19	14.7 to 25.4	(X)	(X)	(X)
HEATING EQUIPMENT					
Steam or hot water.....	21	17.2 to 25.7	11.2	-1.5	-2.3 to -0.7
Central warm-air.....	22	19.2 to 24.2	43.7	-2.0	-3.3 to -0.7
Built-in electric.....	30	22.5 to 38.7	3.1	1.5	0.9 to 2.1
Floor furnace.....	39	33.6 to 46.2	8.9	*0.0	-1.1 to 1.0
Heater with flue.....	36	31.4 to 40.7	15.0	1.9	0.6 to 3.1
Heater without flue.....	34	29.0 to 40.5	8.9	*0.6	-0.4 to 1.5
Portable heater.....	28	23.0 to 33.6	9.1	*-0.4	-1.3 to 0.5
No equipment.....	(S)	(S)	0.0	(S)	(S)
L-fold index.....	28	26.4 to 30.7	(X)	(X)	(X)
NUMBER OF ROOMS					
1 room.....	33	15.1 to 74.1	0.4	*0.0	-0.2 to 0.2
2 rooms.....	45	32.9 to 61.3	1.9	*-0.2	-0.7 to 0.3
3 rooms.....	37	31.2 to 43.8	8.1	*-0.3	-1.2 to 0.6
4 rooms.....	40	35.7 to 43.9	19.8	*1.2	-0.3 to 2.6
5 rooms.....	48	43.9 to 51.6	27.7	*0.8	-0.9 to 2.6
6 rooms.....	53	48.6 to 57.5	22.2	*-0.7	-2.4 to 0.9
7 rooms.....	63	56.7 to 70.3	10.4	0.1	-1.3 to 1.5
8 rooms.....	65	55.5 to 75.6	5.7	-0.7	-1.7 to 0.3
9 or more rooms.....	43	34.6 to 54.1	3.8	-0.2	-0.9 to 0.6
L-fold index.....	49	46.4 to 51.1	(X)	(X)	(X)

X Not applicable.

* Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

S Does not meet publication standards.

¹The universes of analysis for these characteristics are described in table E.

²A negative value of the net difference rate indicates that the estimated percent in class based on census responses is less than the estimated percent in class based on the reinterview responses; a positive value indicates the opposite.

Table 56. Comparison of Census and Reinterview Responses for Tenure, Outside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units outside SMSA's reported as being occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification						
	Total units	Not reported	Tenure reported in census				
			Total reported	Owned	Cooperative or condominium	Rented for cash	Occupied without payment of cash rent
Total units.....	2,412	15	2,397	1,820	2	430	145
Not reported.....	61	1	60	57	-	2	1
Reported.....	2,351	14	2,337	1,763	2	428	144
Owned.....	1,778	12	1,766	1,738	2	3	23
Cooperative or condominium.....	-	-	-	-	-	-	-
Rented for cash.....	445	2	443	12	-	419	12
Occupied without payment of cash rent.....	128	-	128	13	-	6	109

- Represents zero.

Table 57. Comparison of Census and Reinterview Responses for Contract Rent, Outside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units outside SMSA's reported as renter-occupied in both census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification																
	Total units	NA, not rented, or not reported	Contract rent reported in census														
			Total reported	\$0 to \$30	\$30 to \$39	\$40 to \$49	\$50 to \$59	\$60 to \$69	\$70 to \$79	\$80 to \$89	\$90 to \$99	\$100 to \$119	\$120 to \$149	\$150 to \$199	\$200 to \$249	\$250 to \$299	\$300 or more
Total units.....	2,266	1,856	410	57	41	49	72	47	34	28	10	25	25	16	6	-	-
NA, not rented, or not reported.....	1,837	1,822	15	4	-	-	2	2	2	1	-	2	-	1	1	-	-
Reported.....	429	34	395	53	41	49	70	45	32	27	10	23	25	15	5	-	-
\$0 to \$30.....	72	12	60	51	1	1	1	-	1	2	-	-	2	1	-	-	-
\$30 to \$39.....	44	3	41	1	39	-	1	-	-	-	-	-	-	-	-	-	-
\$40 to \$49.....	57	4	53	1	1	45	4	1	-	1	-	-	-	-	-	-	-
\$50 to \$59.....	70	2	68	-	-	2	63	2	-	-	-	1	-	-	-	-	-
\$60 to \$69.....	45	2	43	-	-	-	-	42	1	-	-	-	-	-	-	-	-
\$70 to \$79.....	34	3	31	-	-	-	-	-	30	1	-	-	-	-	-	-	-
\$80 to \$89.....	27	2	25	-	-	-	1	-	-	22	2	-	-	-	-	-	-
\$90 to \$99.....	14	4	10	-	-	1	-	-	-	1	8	-	-	-	-	-	-
\$100 to \$119.....	22	-	22	-	-	-	-	-	-	-	-	19	2	1	-	-	-
\$120 to \$149.....	23	-	23	-	-	-	-	-	-	-	-	2	20	1	-	-	-
\$150 to \$199.....	15	1	14	-	-	-	-	-	-	-	-	1	1	12	-	-	-
\$200 to \$249.....	6	1	5	-	-	-	-	-	-	-	-	-	-	-	5	-	-
\$250 to \$299.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$300 or more.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Represents zero.

Table 58. Comparison of Census and Reinterview Responses for Number of Units in Structure, Outside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample cases outside SMSA's. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification												
	Total units	Not reported	Number of units in structure reported in census										
			Total reported	1 detached	1 attached	2	3-4	5-9	10-19	20-49	50 or more	Mobile home	Other
Total units.....	2,775	60	2,715	2,259	25	149	71	37	25	14	5	122	8
Not reported.....	1	-	1	1	-	-	-	-	-	-	-	-	-
Reported.....	2,774	60	2,714	2,258	25	149	71	37	25	14	5	122	8
1 detached.....	2,296	52	2,244	2,219	2	6	3	3	-	-	1	6	4
1 attached.....	27	-	27	4	7	12	2	-	1	-	-	-	1
2.....	162	2	160	15	11	127	3	3	-	-	-	-	1
3-4.....	76	3	73	2	2	4	59	5	-	-	-	-	1
5-9.....	37	2	35	1	2	-	4	26	2	-	-	-	-
10-19.....	20	-	20	-	-	-	-	-	18	2	-	-	-
20-49.....	18	-	18	-	-	-	-	-	4	12	2	-	-
50 or more.....	3	-	3	-	-	-	-	-	-	-	2	1	-
Mobile home.....	130	1	129	14	-	-	-	-	-	-	-	115	-
Other.....	5	-	5	3	1	-	-	-	-	-	-	-	1

- Represents zero.

Table 59. Comparison of Census and Reinterview Responses for Number of Bedrooms, Outside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data for this item collected only for housing units receiving 5-percent census questionnaire. Data shown as numbers of sample cases outside SMSA's reported as occupied in the reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification								
	Total units	Not reported	Number of bedrooms reported in census						
			Total reported	No bedrooms	1 bedroom	2 bedrooms	3 bedrooms	4 bedrooms	5 or more bedrooms
Total units...	1,259	26	1,233	3	121	462	464	139	44
Not reported.....	4	-	4	-	-	2	1	1	-
Reported.....	1,255	26	1,229	3	121	460	463	138	44
No bedrooms.....	5	-	5	3	1	-	1	-	-
1 bedroom.....	115	2	113	-	92	18	2	1	-
2 bedrooms.....	465	12	453	-	20	396	32	3	2
3 bedrooms.....	479	7	472	-	5	36	408	18	5
4 bedrooms.....	142	4	138	-	2	7	18	107	4
5 or more bedrooms..	49	1	48	-	1	3	2	9	33

- Represents zero.

Table 60. Comparison of Census and Reinterview Responses for Piped Water, Outside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample cases outside SMSA's. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification					
	Total units	Not reported	Piped water reported in census			
			Total reported	Hot and cold piped water	Cold piped water only	No piped water
Total units.....	2,775	45	2,730	2,440	126	164
Not reported.....	6	-	6	6	-	-
Reported.....	2,769	45	2,724	2,434	126	164
Hot and cold piped water..	2,479	44	2,435	<u>2,401</u>	25	9
Cold piped water only.....	125	1	124	<u>25</u>	<u>80</u>	19
No piped water.....	165	-	165	8	21	<u>136</u>

- Represents zero.

Table 61. Comparison of Census and Reinterview Responses for Kitchen Facilities, Outside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units outside SMSA's reported as being occupied by same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification					
	Total units	Not reported	Kitchen facilities reported in census			
			Total reported	For exclusive use of household	Also used by another household	No complete kitchen facilities
Total units.....	2,266	9	2,257	2,112	1	144
Not reported.....	11	1	10	10	-	-
Reported.....	2,255	8	2,247	2,102	1	144
Complete kitchen facilities for exclusive use of household.....	2,106	7	2,099	<u>2,074</u>	1	24
Complete kitchen facilities also used by another household.....	3	-	3	3	-	-
No complete kitchen facilities.....	146	1	145	25	-	<u>120</u>

- Represents zero.

Table 62. Comparison of Census and Reinterview Responses for Heating Equipment, Outside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units outside SMSA's reported as occupied in the reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification										
	Total units	Not reported	Heating equipment reported in census								
			Total reported	Steam or hot water	Central warm-air	Built-in electric	Floor furnace	Heaters with flue	Heaters without flue	Portable heater	No equipment
Total units.....	2,581	83	2,498	241	1,043	113	221	421	237	219	3
Not reported.....	13	-	13	-	6	-	-	2	2	3	-
Reported.....	2,568	83	2,485	241	1,037	113	221	419	235	216	3
Steam or hot water.....	289	10	279	<u>211</u>	53	11	1	1	2	-	-
Central warm-air.....	1,118	31	1,087	26	<u>931</u>	21	54	38	9	8	-
Built-in electric.....	84	7	77	-	3	<u>68</u>	3	2	-	1	-
Floor furnace.....	230	8	222	1	30	4	<u>142</u>	32	4	9	-
Heaters with flue.....	377	4	373	2	14	2	13	<u>277</u>	43	21	1
Heaters without flue.....	227	6	221	1	3	-	7	41	<u>157</u>	12	-
Portable heater.....	242	16	226	-	3	7	1	28	20	<u>165</u>	2
No equipment.....	1	1	-	-	-	-	-	-	-	-	-

- Represents zero.

Table 63. Comparison of Census and Reinterview Responses for Number of Rooms, Outside SMSA's

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample units outside SMSA's reported as occupied in the reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification											
	Total units	Not reported	Number of rooms reported in census									
			Total reported	1 room	2 rooms	3 rooms	4 rooms	5 rooms	6 rooms	7 rooms	8 rooms	9 or more rooms
Total units....	2,581	15	2,566	9	44	200	537	731	550	271	130	94
Not reported.....	9	-	9	-	-	1	2	2	1	1	2	-
Reported.....	2,572	15	2,557	9	44	199	535	729	549	270	128	94
1 room.....	9	-	9	<u>6</u>	-	-	-	2	-	-	1	-
2 rooms.....	49	-	49	2	<u>26</u>	14	6	1	-	-	-	-
3 rooms.....	209	2	207	-	13	<u>134</u>	51	6	2	-	1	-
4 rooms.....	507	2	505	-	3	38	<u>356</u>	84	17	6	-	1
5 rooms.....	712	4	708	1	2	5	92	<u>473</u>	114	16	5	-
6 rooms.....	573	5	568	-	-	5	19	131	<u>328</u>	72	11	2
7 rooms.....	268	1	267	-	-	1	6	26	68	<u>117</u>	38	11
8 rooms.....	147	1	146	-	-	1	3	3	17	45	<u>53</u>	24
9 or more rooms..	98	-	98	-	-	1	2	3	3	14	19	<u>56</u>

- Represents zero.

Table 64. Summary Measures of Response Error for Selected Housing Characteristics Estimated from Response-Variance Type Reinterview, Negro Head of Household: 1970 Census

(All estimates multiplied by 100)

Characteristic ¹	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class according to reinterview	Net difference rate ²	95-percent confidence interval for net difference rate
HEATING FUEL					
Gas.....	18	12.2 to 26.1	61.9	*0.9	-2.4 to 4.2
Electricity.....	61	31.8 to 117.9	1.6	*1.6	-0.4 to 3.5
Oil, kerosene.....	20	13.1 to 30.6	23.2	-3.1	-6.1 to -0.1
Coal.....	11	4.3 to 29.3	5.9	*0.0	-1.4 to 1.4
Wood.....	11	4.6 to 26.3	7.4	*0.3	-1.2 to 1.8
Other.....	(S)	(S)	0.0	(S)	(S)
Not heated.....	(S)	(S)	0.0	(S)	(S)
L-fold index.....	19	13.9 to 26.3	(X)	(X)	(X)
RENTERS PAYING EXTRA FOR ELECTRICITY					
Paying extra.....	19	10.6 to 33.1	68.2	*0.0	-4.9 to 4.9
Not paying extra.....	19	10.6 to 33.1	31.8	*0.0	-4.9 to 4.9
RENTERS PAYING EXTRA FOR GAS					
Paying extra.....	11	5.6 to 22.4	57.1	*2.7	-1.4 to 6.8
Not paying extra.....	11	5.6 to 22.4	42.9	*-2.7	-6.8 to 1.4
RENTERS PAYING EXTRA FOR WATER					
Paying extra.....	25	12.1 to 53.1	12.1	*-2.1	-6.1 to 1.9
Not paying extra.....	25	12.1 to 53.1	87.9	*2.1	-1.9 to 6.1
RENTERS PAYING EXTRA FOR OTHER FUELS					
Paying extra.....	36	17.3 to 75.9	10.6	*-4.1	-8.7 to 0.5
Not paying extra.....	36	17.3 to 75.9	89.4	*4.1	-0.5 to 8.7
BATHTUB OR SHOWER FACILITIES					
Bathtub or shower for exclusive use of household.....	9	5.2 to 13.9	83.9	-1.5	-2.7 to -0.3
Bathtub or shower used also by another household.....	(S)	(S)	0.5	(S)	(S)
No bathtub or shower.....	7	4.1 to 12.3	15.6	1.3	0.2 to 2.5
L-fold index.....	8	5.2 to 13.9	(X)	(X)	(X)
FLUSH TOILET FACILITIES					
Flush toilet for exclusive use of household.....	6	3.5 to 11.4	85.2	*-1.0	-2.1 to 0.0
Flush toilet also used by another household.....	64	30.6 to 134.1	0.4	*0.7	-0.1 to 1.6
No flush toilet.....	6	3.2 to 11.1	14.4	*0.3	-0.7 to 1.3
L-fold index.....	8	4.7 to 13.4	(X)	(X)	(X)

See footnotes at end of table.

Table 64. Summary Measures of Response Error for Selected Housing Characteristics Estimated from Response-Variance Type Reinterview, Negro Head of Household: 1970 Census—Con.

(All estimates multiplied by 100)

Characteristic ¹	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class according to reinterview	Net difference rate ²	95-percent confidence interval for net difference rate
TELEPHONE AVAILABILITY					
Available.....	24	19.0 to 31.2	74.8	-3.7	-6.1 to -1.3
Not available.....	24	19.0 to 31.2	25.2	3.7	1.3 to 6.1
YEAR STRUCTURE BUILT					
1969 or later.....	25	14.2 to 44.4	4.6	*-0.4	-1.6 to 0.9
1965-1968.....	35	24.2 to 51.3	7.7	*0.0	-1.9 to 1.9
1960-1964.....	50	37.2 to 68.3	7.7	*1.3	-1.1 to 3.6
1950-1959.....	47	37.9 to 57.8	17.0	*1.1	-2.1 to 4.2
1940-1949.....	66	54.9 to 78.7	15.3	*1.8	-1.8 to 5.4
1939 or earlier.....	31	25.7 to 38.0	47.7	-3.7	-7.1 to -0.4
L-fold index.....	43	37.9 to 48.8	(X)	(X)	(X)
VALUE OF HOME					
Less than \$5,000.....	32	20.4 to 50.7	14.2	*0.4	-3.3 to 4.2
\$5,000-\$7,499.....	73	55.8 to 97.3	12.9	*1.3	-4.2 to 6.7
\$7,500-\$9,999.....	88	69.0 to 113.8	8.4	9.6	3.7 to 15.5
\$10,000-\$12,499.....	85	67.9 to 107.0	18.8	*-3.8	-10.1 to 2.6
\$12,500-\$14,999.....	74	54.4 to 103.1	9.6	*0.8	-3.9 to 5.6
\$15,000-\$17,499.....	64	46.9 to 88.0	14.2	*-3.8	-8.7 to 1.1
\$17,500-\$19,999.....	77	54.0 to 112.3	6.7	*1.3	-3.0 to 5.5
\$20,000-\$24,999.....	74	52.4 to 107.3	9.2	*-2.5	-6.9 to 1.8
\$25,000-\$34,999.....	71	41.0 to 122.5	5.4	*-2.9	-6.1 to 0.2
\$35,000-\$49,999.....	(S)	(S)	0.4	(S)	(S)
\$50,000 or more.....	(S)	(S)	0.0	(S)	(S)
L-fold index.....	70	64.2 to 78.5	(X)	(X)	(X)

X Not applicable.

* Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

S Does not meet publication standards.

¹The universes of analysis for these characteristics are described in table A.

²A negative value of the net difference rate indicates that the estimated percent in class based on census responses is less than the estimated percent in class based on the reinterview responses; a positive value indicates the opposite.

**Table 65. Comparison of Census and Reinterview Responses for Heating Fuel,
Negro Head of Household**

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data for this item collected only for housing units receiving 5-percent census questionnaire. Data shown as numbers of sample housing units with Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification									
	Total units	Not Reported	Type of heating fuel reported in census							
			Total reported	Gas	Elec- tricity	Oil, kero- sene	Coal	Wood	Other	None
Total units.....	333	9	324	203	10	65	19	26	1	-
Not reported.....	1	-	1	-	-	-	-	1	-	-
Reported.....	332	9	323	203	10	65	19	25	1	-
Gas.....	205	5	200	188	4	5	1	2	-	-
Electricity.....	5	-	5	1	3	1	-	-	-	-
Oil, kerosene....	77	2	75	12	2	59	1	-	1	-
Coal.....	20	1	19	-	1	-	17	1	-	-
Wood.....	24	-	24	2	-	-	-	22	-	-
Other.....	1	1	-	-	-	-	-	-	-	-
None.....	-	-	-	-	-	-	-	-	-	-

- Represents zero.

**Table 66. Comparison of Census and Reinterview Responses for Extra Payment for
Electricity, Negro Head of Household**

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with Negro head of household reported as occupied in multiunit structures in the reinterview and occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification				
	Total units	Not reported	Extra payment for electricity reported in census		
			Total reported	Pays extra	Doesn't pay extra
Total units.....	218	50	168	114	54
Not reported.....	49	29	20	13	7
Reported.....	169	21	148	101	47
Pays extra.....	118	17	101	95	6
Doesn't pay extra.....	51	4	47	6	41

Table 67. Comparison of Census and Reinterview Responses for Extra Payment for Gas, Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with Negro head of household reported as occupied in multiunit structures in the reinterview and occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification				
	Total units	Not reported	Extra payment for gas reported in census		
			Total reported	Pays extra	Doesn't pay extra
Total units.....	218	51	167	100	67
Not reported.....	49	29	20	12	8
Reported.....	169	22	147	88	59
Pays extra.....	98	14	84	<u>82</u>	2
Doesn't pay extra.....	71	8	63	6	<u>57</u>

Table 68. Comparison of Census and Reinterview Responses for Extra Payment for Water, Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with Negro head of household reported as occupied in multiunit structures in the reinterview and occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification				
	Total units	Not reported	Extra payment for water reported in census		
			Total reported	Pays extra	Doesn't pay extra
Total units.....	218	55	163	17	146
Not reported.....	51	29	22	3	19
Reported.....	167	26	141	14	127
Pays extra.....	23	6	17	<u>12</u>	5
Doesn't pay extra.....	144	20	124	2	<u>122</u>

Table 69. Comparison of Census and Reinterview Responses for Extra Payment for Other Fuels, Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with Negro head of household reported as occupied in multiunit structures in the reinterview and occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification				
	Total units	Not reported	Extra payment for other fuels reported in census		
			Total reported	Pays extra	Doesn't pay extra
Total units.....	218	63	155	9	146
Not reported.....	64	32	32	1	31
Reported.....	154	31	123	8	115
Pays extra.....	18	5	13	7	6
Doesn't pay extra.....	136	26	110	1	109

- Represents zero.

Table 70. Comparison of Census and Reinterview Responses for Bathtub or Shower Facilities, Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification					
	Total units	Not reported	Bathtub and shower facilities reported in census			
			Total reported	For exclusive use of household	Used also by another household	No bathtub or shower
Total units.....	680	6	674	556	4	114
Not reported.....	1	-	1	1	-	-
Reported.....	679	6	673	555	4	114
Bathtub or shower for exclusive use of household.....	568	3	565	552	2	11
Bathtub or shower used also by another household.....	3	-	3	1	2	-
No bathtub or shower...	108	3	105	2	-	103

- Represents zero.

**Table 71. Comparison of Census and Reinterview Responses for Flush Toilet Facilities,
Negro Head of Household**

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of non-interviews and matching problems)

Reinterview classification	Census classification					
	Total units	Not reported	Flush toilet facilities reported in census			
			Total reported	For exclusive use of household	Used also by another household	No flush toilet
Total units.....	680	2	678	571	8	99
Not reported.....	1	-	1	1	-	-
Reported.....	679	2	677	570	8	99
Flush toilet for exclusive use of household.	577	-	577	568	3	6
Flush toilet used also by another household..	3	-	3	1	2	-
No flush toilet.....	99	2	97	1	3	93

- Represents zero.

**Table 72. Comparison of Census and Reinterview Responses for Telephone Availability,
Negro Head of Household**

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification				
	Total units	Not reported	Telephone availability reported in census		
			Total reported	Phone available	Phone not available
Total units.....	680	5	675	480	195
Not reported.....	-	-	-	-	-
Reported.....	680	5	675	480	195
Phone available.....	509	4	505	460	45
Phone not available.....	171	1	170	20	150

Table 73. Comparison of Census and Reinterview Responses for Year Structure Built, Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of non-interviews and matching problems)

Reinterview classification	Census classification								
	Total units	Not reported	Year structure built reported in census						
			Total reported	1969 or later	1965 to 1968	1960 to 1964	1950 to 1959	1940 to 1949	1939 or earlier
Total units....	680	35	645	25	45	53	120	112	290
Not reported.....	90	7	83	1	2	3	18	16	43
Reported.....	590	28	562	24	43	50	102	96	247
1969 or later.....	26	-	26	19	5	-	-	1	1
1965 to 1968.....	44	1	43	4	29	6	3	-	1
1960 to 1964.....	47	4	43	-	5	25	9	1	3
1950 to 1959.....	100	4	96	-	1	15	61	13	6
1940 to 1949.....	89	3	86	1	3	3	16	41	22
1939 or earlier.....	284	16	268	-	-	1	13	40	214

- Represents zero.

Table 74. Comparison of Census and Reinterview Responses for Value of Home, Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of single-family sample housing units with Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification													
	Total units	Not owned, tenure not reported, or value of home not reported	Value of home reported in census											
			Total reported	Less than \$5,000	\$5,000 to \$7,499	\$7,500 to \$9,999	\$10,000 to \$12,499	\$12,500 to \$14,999	\$15,000 to \$17,499	\$17,500 to \$19,999	\$20,000 to \$24,999	\$25,000 to \$34,999	\$35,000 to \$49,999	\$50,000 or more
Total units..	444	166	278	48	44	49	40	26	26	22	17	6	-	-
Not reported.....	178	139	39	13	10	6	4	1	1	3	1	-	-	-
Reported.....	266	27	239	35	34	43	36	25	25	19	16	6	-	-
Less than \$5,000...	40	6	34	25	7	-	1	-	-	1	-	-	-	-
\$5,000 to \$7,499...	33	2	31	4	12	13	1	-	-	-	1	-	-	-
\$7,500 to \$9,999...	26	6	20	3	5	7	5	-	-	-	-	-	-	-
\$10,000 to \$12,499...	52	7	45	3	4	16	12	5	2	3	-	-	-	-
\$12,500 to \$14,999...	25	2	23	-	3	3	8	8	1	-	-	-	-	-
\$15,000 to \$17,499...	36	2	34	-	1	2	6	8	13	3	1	-	-	-
\$17,500 to \$19,999...	16	-	16	-	1	2	-	3	3	5	2	-	-	-
\$20,000 to \$24,999...	23	1	22	-	1	-	3	-	4	6	6	2	-	-
\$25,000 to \$34,999...	13	-	13	-	-	-	-	1	2	1	6	3	-	-
\$35,000 to \$49,999...	2	1	1	-	-	-	-	-	-	-	-	1	-	-
\$50,000 or more....	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Represents zero.

Table 75. Summary Measures of Response Error for Selected Housing Characteristics Estimated from Response-Bias Type Reinterview, Negro Head of Household: 1970 Census

(All estimates multiplied by 100)

Characteristic ¹	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class according to reinterview	Net difference rate ²	95-percent confidence interval for net difference rate
TENURE					
Owned or being bought.....	5	3.2 to 8.4	49.9	*0.8	-0.5 to 2.1
Cooperative or condominium.....	28	9.2 to 82.5	0.9	*-0.2	-0.8 to 0.5
Rented for cash.....	3	1.9 to 6.2	43.4	*-0.5	-1.5 to 0.6
Occupied without payment of cash rent.	21	12.7 to 35.4	5.8	*-0.2	-1.4 to 1.1
L-fold index.....	6	4.2 to 9.5	(X)	(X)	(X)
CONTRACT RENT					
Less the \$30.....	7	3.1 to 17.6	14.9	*-1.1	-2.9 to 0.7
\$30 to \$39.....	11	4.1 to 28.2	6.9	*0.7	-0.9 to 2.4
\$40 to \$49.....	7	2.9 to 19.6	11.3	*-0.7	-2.4 to 0.9
\$50 to \$59.....	13	5.8 to 28.2	9.4	*0.0	-1.9 to 1.9
\$60 to \$69.....	10	4.8 to 21.2	14.9	*-0.4	-2.4 to 1.7
\$70 to \$69.....	9	2.9 to 26.1	6.6	*0.4	-1.1 to 1.8
\$80 to \$89.....	16	7.5 to 32.8	8.7	*0.4	-1.7 to 2.4
\$90 to \$99.....	11	4.1 to 28.2	7.6	*-0.7	-2.4 to 0.9
\$100 to \$119.....	18	8.8 to 35.2	9.1	*0.0	-2.2 to 2.2
\$120 to \$149.....	18	8.4 to 37.0	7.3	*1.1	-1.0 to 3.2
\$150 to \$199.....	13	3.5 to 48.1	2.9	*0.0	-1.3 to 1.3
\$200 to \$249.....	(S)	(S)	0.4	(S)	(S)
\$250 to \$299.....	(S)	(S)	0.0	(S)	(S)
\$300 or more.....	(S)	(S)	0.0	(S)	(S)
L-fold index.....	12	8.4 to 16.7	(X)	(X)	(X)
NUMBER OF UNITS IN STRUCTURE					
1 detached.....	6	3.5 to 9.0	60.7	*0.9	-0.4 to 2.2
1 attached.....	26	17.2 to 39.4	6.4	*1.3	-0.1 to 2.8
2.....	20	13.3 to 29.4	11.1	*-1.3	-2.8 to 0.2
3-4.....	23	14.1 to 37.0	6.1	*-0.4	-1.7 to 0.8
5-9.....	40	27.2 to 60.1	4.9	*-0.2	-1.7 to 1.4
10-19.....	41	23.1 to 72.3	2.1	*0.3	-0.8 to 1.4
20-49.....	47	29.2 to 76.3	3.3	*-1.0	-2.3 to 0.2
50 or more.....	19	10.4 to 34.2	4.4	*0.2	-0.9 to 1.2
Mobile home.....	13	3.4 to 47.2	1.0	*0.3	-0.2 to 1.1
Other.....	(S)	(S)	0.0	(S)	(S)
L-fold index.....	19	15.0 to 23.2	(X)	(X)	(X)
NUMBER OF BEDROOMS					
No bedroom.....	41	15.5 to 106.1	2.1	*-1.2	-3.1 to 0.1
1 bedroom.....	25	16.9 to 38.0	15.8	*2.4	-0.6 to 5.4
2 bedrooms.....	28	21.0 to 37.3	32.2	*0.9	-3.0 to 4.8
3 bedrooms.....	20	13.9 to 28.8	34.6	*-1.8	-5.1 to 1.5
4 bedrooms.....	18	10.1 to 30.3	12.8	*-0.3	-2.5 to 1.9
5 or more bedrooms.....	13	3.4 to 47.8	2.4	*0.0	-1.0 to 1.0
L-fold index.....	23	18.4 to 29.6	(X)	(X)	(X)
PIPED WATER					
Hot and cold piped water.....	6	3.6 to 10.8	80.8	*0.4	-0.7 to 1.6
Cold water only.....	27	17.6 to 40.2	7.2	*-0.7	-2.2 to 0.7
No piped water.....	11	6.8 to 18.2	12.0	*0.3	-0.9 to 1.5
L-fold index.....	12	8.0 to 17.5	(X)	(X)	(X)

See footnotes at end of table.

Table 75. Summary Measures of Response Error for Selected Housing Characteristics Estimated from Response-Bias Type Reinterview, Negro Head of Household: 1970 Census—Con.

(All estimates multiplied by 100)

Characteristic ¹	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class according to reinterview	Net difference rate ²	95-percent confidence interval for net difference rate
KITCHEN FACILITIES					
Complete facilities for exclusive use of household.....	18	12.5 to 25.8	84.5	*1.5	-0.2 to 3.2
Complete facilities also used by another household.....	(S)	(S)	0.6	(S)	(S)
No complete facilities.....	16	10.8 to 23.6	14.9	*-1.2	-2.8 to 0.4
L-fold index.....	18	12.9 to 26.4	(X)	(X)	(X)
HEATING EQUIPMENT					
Steam or hot water.....	18	13.0 to 25.2	20.7	-3.1	-5.0 to -1.2
Central warm-air.....	27	21.0 to 34.6	25.7	*-2.5	-5.0 to 0.0
Built-in electric.....	66	39.6 to 110.0	0.8	2.0	0.8 to 3.3
Floor furnace.....	43	31.6 to 59.8	7.9	*-0.8	-2.8 to 1.2
Heater with flue.....	54	44.3 to 65.6	11.1	7.5	4.5 to 10.4
Heater without flue.....	43	34.4 to 52.9	16.2	*0.5	-2.3 to 3.2
Portable heater.....	30	22.9 to 40.0	17.3	-3.6	-5.8 to -1.3
No equipment.....	(S)	(S)	0.3	(S)	(S)
L-fold index.....	35	30.9 to 39.6	(X)	(X)	(X)
NUMBER OF ROOMS					
1 room.....	54	26.0 to 113.8	0.9	*0.2	-0.7 to 1.0
2 rooms.....	41	26.9 to 61.6	3.9	*1.0	-0.4 to 2.5
3 rooms.....	33	25.6 to 43.6	15.1	*-1.2	-3.4 to 1.1
4 rooms.....	31	25.2 to 39.2	21.8	*0.0	-2.5 to 2.5
5 rooms.....	38	31.5 to 46.1	22.7	*2.2	-0.7 to 5.1
6 rooms.....	41	34.2 to 50.3	20.3	*0.5	-2.4 to 3.3
7 rooms.....	61	47.5 to 77.9	9.5	*1.6	-4.0 to 0.8
8 rooms.....	57	38.6 to 85.5	3.7	*-0.7	-2.3 to 0.8
9 or more rooms.....	39	21.0 to 73.1	2.1	*-0.3	-1.3 to 0.7
L-fold index.....	40	35.9 to 44.7	(X)	(X)	(X)

X Not applicable.

* Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

S Does not meet publication standards.

¹The universes of analysis for these characteristics are described in table E.

²A negative value of the net difference rate indicates that the estimated percent in class based on census responses is less than the estimated percent in class based on the reinterview responses; a positive value indicates the opposite.

**Table 76. Comparison of Census and Reinterview Responses for Tenure,
Negro Head of Household**

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of non-interviews and matching problems)

Reinterview classification	Census classification						
	Total units	Not reported	Tenure reported in census				
			Total reported	Owned	Cooperative or condominium	Rented for cash	Occupied without payment of cash rent
Total units.....	680	2	678	353	5	283	37
Not reported.....	22	-	22	21	-	1	-
Reported.....	658	2	656	332	5	282	37
Owned.....	328	1	327	<u>321</u>	-	1	5
Cooperative or condominium.....	6	-	6	-	<u>4</u>	2	-
Rent for cash.....	286	1	285	4	<u>1</u>	<u>278</u>	2
Occupied without payment of cash rent.....	38	-	38	7	-	1	<u>30</u>

- Represents zero.

**Table 77. Comparison of Census and Reinterview Responses for Contract Rent,
Negro Head of Household**

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of rented sample housing units with Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification																
	Total units	NA, not rented, or not reported	Contract rent reported in census														
			Total reported	\$0 to \$30	\$30 to \$39	\$40 to \$49	\$50 to \$59	\$60 to \$69	\$70 to \$79	\$80 to \$89	\$90 to \$99	\$100 to \$119	\$120 to \$149	\$150 to \$199	\$200 to \$249	\$250 to \$299	\$300 or more
Total units.....	666	386	280	40	22	29	26	40	19	27	19	25	23	8	2	-	-
NA, not rented, or not reported.....	382	377	5	2	1	-	-	-	-	2	-	-	-	-	-	-	-
Reported.....	284	9	275	38	21	29	26	40	19	25	19	25	23	8	2	-	-
\$0 to \$30.....	44	3	41	<u>37</u>	2	-	-	-	-	-	-	1	-	-	-	-	-
\$30 to \$39.....	20	1	19	-	<u>18</u>	1	-	-	-	-	-	1	-	-	-	-	-
\$40 to \$49.....	31	-	31	-	<u>1</u>	<u>28</u>	1	-	-	-	-	-	1	-	-	-	-
\$50 to \$59.....	27	1	26	1	-	-	<u>23</u>	1	1	-	-	-	-	-	-	-	-
\$60 to \$69.....	42	1	41	-	-	-	<u>1</u>	<u>37</u>	1	2	-	-	-	-	-	-	-
\$70 to \$79.....	18	-	18	-	-	-	-	<u>1</u>	<u>17</u>	-	-	-	-	-	-	-	-
\$80 to \$89.....	25	1	24	-	-	-	1	1	-	<u>21</u>	-	1	-	-	-	-	-
\$90 to \$99.....	22	1	21	-	-	-	-	-	-	<u>2</u>	<u>18</u>	-	1	-	-	-	-
\$100 to \$119.....	25	-	25	-	-	-	-	-	-	-	<u>1</u>	<u>21</u>	3	-	-	-	-
\$120 to \$149.....	20	-	20	-	-	-	-	-	-	-	-	<u>1</u>	<u>18</u>	1	-	-	-
\$150 to \$199.....	9	1	8	-	-	-	-	-	-	-	-	-	<u>7</u>	<u>1</u>	-	-	-
\$200 to \$249.....	1	-	1	-	-	-	-	-	-	-	-	-	-	-	<u>1</u>	-	-
\$250 to \$299.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$300 or more.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Represents zero.

Table 78. Comparison of Census and Reinterview Responses for Number of Units in Structure, Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification												
	Total units	Not reported	Number of units in structure reported in census										
			Total reported	1 detached	1 attached	2	3-4	5-9	10-19	20-49	50 or more	Mobile home	Other
Total units.....	680	5	675	416	52	66	38	32	16	15	31	9	-
Not reported.....	-	-	-	-	-	-	-	-	-	-	-	-	-
Reported.....	680	5	675	416	52	66	38	32	16	15	31	9	-
1 detached.....	413	3	410	<u>404</u>	2	2	-	-	-	-	-	2	-
1 attached.....	43	-	43	3	<u>36</u>	3	1	-	-	-	-	-	-
2.....	75	-	75	8	6	<u>58</u>	2	1	-	-	-	-	-
3-4.....	41	-	41	1	2	3	<u>31</u>	4	-	-	-	-	-
5-9.....	35	2	33	-	6	-	4	<u>20</u>	3	-	-	-	-
10-19.....	14	-	14	-	-	-	-	5	<u>9</u>	-	-	-	-
20-49.....	22	-	22	-	-	-	-	2	4	<u>10</u>	6	-	-
50 or more.....	30	-	30	-	-	-	-	-	-	5	<u>25</u>	-	-
Mobile home.....	7	-	7	-	-	-	-	-	-	-	-	<u>7</u>	-
Other.....	-	-	-	-	-	-	-	-	-	-	-	-	-

- Represents zero.

Table 79. Comparison of Census and Reinterview Responses for Number of Bedrooms, Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data for this item collected only for housing units receiving 5-percent census questionnaire. Data shown as numbers of sample housing units with Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification								
	Total units	Not reported	Number of bedrooms reported in census						
			Total reported	No bedrooms	1 bedroom	2 bedrooms	3 bedrooms	4 bedrooms	5 or more bedrooms
Total units....	337	2	335	3	61	111	110	42	8
Not reported.....	-	-	-	-	-	-	-	-	-
Reported.....	337	2	335	3	61	111	110	42	8
No bedrooms.....	7	-	7	<u>3</u>	3	1	-	-	-
1 bedroom.....	53	-	53	-	<u>45</u>	8	-	-	-
2 bedrooms.....	108	-	108	-	10	<u>89</u>	8	1	-
3 bedrooms.....	117	1	116	-	2	12	<u>98</u>	4	-
4 bedrooms.....	44	1	43	-	1	1	4	<u>36</u>	1
5 or more bedrooms...	8	-	8	-	-	-	-	1	<u>7</u>

- Represents zero.

Table 80. Comparison of Census and Reinterview Responses for Piped Water, Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification					
	Total units	Not reported	Piped water reported in census			
			Total reported	Hot and cold piped water	Cold piped water only	No piped water
Total units.....	680	2	678	551	44	83
Not reported.....	-	-	-	-	-	-
Reported.....	680	2	678	551	44	83
Hot and cold piped water...	550	2	548	<u>543</u>	3	2
Cold piped water only.....	49	-	49	<u>7</u>	<u>35</u>	7
No piped water.....	81	-	81	1	6	<u>74</u>

- Represents zero.

Table 81. Comparison of Census and Reinterview Responses for Kitchen Facilities, Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification					
	Total units	Not reported	Kitchen facilities reported in census			
			Total reported	For exclusive use of household	Also used by another household	No complete kitchen facilities
Total units.....	666	1	665	572	2	91
Not reported.....	2	-	2	2	-	-
Reported.....	664	1	663	570	2	91
Complete kitchen facilities for exclusive use of household.....	561	1	560	<u>550</u>	1	9
Complete kitchen facilities also used by another household.....	4	-	4	4	-	-
No complete kitchen facilities.....	99	-	99	16	1	<u>82</u>

- Represents zero.

Table 82. Comparison of Census and Reinterview Responses for Heating Equipment, Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification										
	Total units	Not reported	Heating equipment reported in census								
			Total reported	Steam or hot water	Central warm air	Built-in electric	Floor furnace	Heaters with flue	Heaters without flue	Portable heater	No equipment
Total units.....	664	19	645	113	149	18	47	121	107	88	2
Not reported.....	3	-	3	-	-	-	1	2	-	-	-
Reported.....	661	19	642	113	149	18	46	119	107	88	2
Steam or hot water.....	136	3	133	105	14	3	2	6	2	1	-
Central warm-air.....	172	7	165	7	125	7	11	10	2	3	-
Built-in electric.....	5	-	5	-	-	4	-	1	-	-	-
Floor furnace.....	53	2	51	-	8	2	29	7	3	2	-
Heaters with flue.....	72	1	71	-	2	2	1	51	11	4	-
Heaters without flue.....	108	4	104	1	-	-	1	30	68	4	-
Portable heater.....	113	2	111	-	-	-	2	14	20	74	1
No equipment.....	2	-	2	-	-	-	-	-	1	-	1

- Represents zero.

Table 83. Comparison of Census and Reinterview Responses for Number of Rooms, Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification											
	Total units	Not reported	Number of rooms reported in census									
			Total reported	1 room	2 rooms	3 rooms	4 rooms	5 rooms	6 rooms	7 rooms	8 rooms	9 or more rooms
Total units....	680	5	675	7	33	94	147	169	140	53	20	12
Not reported.....	1	-	1	-	-	-	-	1	-	-	-	-
Reported.....	679	5	674	7	33	94	147	168	140	53	20	12
1 room.....	6	-	6	3	1	-	1	1	-	-	-	-
2 rooms.....	26	-	26	2	18	5	1	-	-	-	-	-
3 rooms.....	104	2	102	2	8	70	21	1	-	-	-	-
4 rooms.....	149	2	147	-	6	13	111	15	2	-	-	-
5 rooms.....	153	-	153	-	-	4	7	114	21	6	1	-
6 rooms.....	138	1	137	-	-	1	4	27	93	11	1	-
7 rooms.....	64	-	64	-	-	1	2	8	21	26	6	-
8 rooms.....	25	-	25	-	-	-	-	1	1	9	10	4
9 or more rooms..	14	-	14	-	-	-	-	1	2	1	2	8

- Represents zero.

Table 84. Summary Measures of Response Error for Selected Housing Characteristics Estimated from Response-Variance Type Reinterview, Non-Negro Head of Household: 1970 Census

(All estimates multiplied by 100)

Characteristic ¹	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class according to reinterview	Net difference rate ²	95-percent confidence interval for net difference rate
HEATING FUEL					
Gas.....	8	7.1 to 10.2	61.6	*0.3	-0.4 to 1.0
Electricity.....	18	13.9 to 23.6	5.0	1.0	0.5 to 1.5
Oil, kerosene.....	7	5.9 to 9.0	28.6	-1.2	-1.8 to -0.5
Coal.....	13	8.9 to 20.3	2.9	*0.0	-0.3 to 0.4
Wood.....	20	11.9 to 34.3	1.2	*-0.1	-0.4 to 0.1
Other.....	80	40.1 to 100.0	0.2	*-0.1	-0.3 to 0.1
Not heated.....	22	9.7 to 47.7	0.5	*0.0	-0.2 to 0.2
L-fold index.....	10	8.4 to 11.5	(X)	(X)	(X)
RENTERS PAYING EXTRA FOR ELECTRICITY					
Paying extra.....	12	8.9 to 17.1	75.9	*0.5	-1.0 to 1.9
Not paying extra.....	12	8.9 to 17.1	24.1	*-0.5	-1.9 to 1.0
RENTERS PAYING EXTRA FOR GAS					
Paying extra.....	19	15.1 to 23.7	54.4	*-1.8	-3.9 to 0.3
Not paying extra.....	19	15.1 to 23.7	45.6	*1.8	-0.3 to 3.9
RENTERS PAYING EXTRA FOR WATER					
Paying extra.....	38	29.0 to 51.0	9.3	*-1.7	-3.4 to 0.0
Not paying extra.....	38	29.0 to 51.0	90.7	*1.7	0.0 to 3.4
RENTERS PAYING EXTRA FOR OTHER FUELS					
Paying extra.....	46	33.1 to 63.2	6.9	-2.1	-3.8 to -0.5
Not paying extra.....	46	33.1 to 63.2	93.1	2.1	0.5 to 3.8
BATHTUB OR SHOWER FACILITIES					
Bathtub or shower for exclusive use of household.....	19	15.2 to 24.5	97.0	*0.0	-0.3 to 0.3
Bathtub or shower used also by another household.....	44	28.0 to 68.0	0.4	*-0.1	-0.2 to 0.1
No bathtub or shower.....	19	14.5 to 24.3	2.6	*0.1	-0.2 to 0.3
L-fold index.....	21	16.3 to 26.0	(X)	(X)	(X)
FLUSH TOILET FACILITIES					
Flush toilet for exclusive use of household.....	17	12.6 to 22.2	97.5	*0.0	-0.2 to 0.3
Flush toilet also used by another household.....	45	28.3 to 72.0	0.4	*-0.1	-0.2 to 0.0
No flush toilet.....	15	10.6 to 20.2	2.1	*0.1	-0.1 to 0.3
L-fold index.....	18	13.5 to 23.3	(X)	(X)	(X)

See footnotes at end of table.

Table 84. Summary Measures of Response Error for Selected Housing Characteristics Estimated from Response-Variance Type Reinterview, Non-Negro Head of Household: 1970 Census—Con.

(All estimates multiplied by 100)

Characteristic ¹	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class according to reinterview	Net difference rate ²	95-percent confidence interval for net difference rate
TELEPHONE AVAILABILITY					
Available.....	24	20.9 to 27.6	92.9	-0.6	-1.1 to -0.2
Not available.....	24	20.9 to 27.6	7.1	0.6	0.2 to 1.1
YEAR STRUCTURE BUILT					
1969 or later.....	25	19.6 to 31.6	2.4	*0.1	-0.2 to 0.4
1965-1968.....	19	16.4 to 22.0	9.4	*0.2	-0.3 to 0.7
1960-1964.....	26	23.0 to 28.7	12.5	*-0.1	-0.7 to 0.6
1950-1959.....	23	20.9 to 25.1	24.1	*-0.5	-1.2 to 0.3
1940-1949.....	40	36.1 to 43.3	11.6	*0.7	-0.1 to 1.5
1939 or earlier.....	13	12.1 to 14.9	40.0	*-0.4	-1.1 to 0.2
L-fold index.....	22	21.0 to 23.6	(X)	(X)	(X)
VALUE OF HOME					
Less than \$5,000.....	42	34.6 to 51.1	3.1	1.8	1.1 to 2.4
\$5,000-\$7,499.....	60	52.2 to 69.0	4.8	1.4	0.5 to 2.2
\$7,500-\$9,999.....	65	57.3 to 72.7	5.8	2.5	1.5 to 3.5
\$10,000-\$12,499.....	63	57.4 to 69.3	11.3	-1.3	-2.5 to -0.1
\$12,500-\$14,999.....	73	66.0 to 81.0	5.7	3.9	2.8 to 5.0
\$15,000-\$17,499.....	65	59.7 to 71.7	11.6	-1.7	-3.0 to -0.5
\$17,500-\$19,999.....	68	62.1 to 75.6	7.7	2.6	1.4 to 3.8
\$20,000-\$24,999.....	67	62.2 to 72.4	15.5	*-0.6	-2.0 to 0.9
\$25,000-\$34,999.....	45	41.4 to 49.3	21.2	-4.9	-6.2 to -3.6
\$35,000-\$49,999.....	40	34.4 to 45.9	9.4	-3.0	-3.8 to -2.1
\$50,000 or more.....	20	14.9 to 26.9	3.9	-0.6	-1.0 to -0.2
L-fold index.....	58	55.6 to 59.6	(X)	(X)	(X)

X Not applicable.

* Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

¹The universes of analysis for these characteristics are described in table A.

²A negative value of the net difference rate indicates that the estimated percent in class based on census responses is less than the estimated percent in class based on the reinterview responses; a positive value indicates the opposite.

Table 85. Comparison of Census and Reinterview Responses for Heating Fuel, Non-Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data for this item collected only for housing units receiving 5-percent census questionnaire. Data shown as numbers of sample housing units with non-Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification									
	Total units	Not reported	Type of heating fuel reported in census							
			Total reported	Gas	Elec- tricity	Oil, kero- sene	Coal	Wood	Other	None
Total units....	3,093	41	3,052	1,885	189	835	90	34	5	14
Not reported.....	41	4	37	19	7	8	1	1	1	-
Reported.....	3,052	37	3,015	1,866	182	827	89	33	4	14
Gas.....	1,873	16	1,857	<u>1,801</u>	28	17	5	3	1	2
Electricity.....	154	3	151	9	<u>138</u>	3	-	-	-	1
Oil, kerosene....	872	10	862	45	9	<u>800</u>	5	1	2	-
Coal.....	93	5	88	4	3	3	<u>77</u>	1	-	-
Wood.....	39	2	37	3	2	2	2	<u>28</u>	-	-
Other.....	6	-	6	3	-	2	-	-	<u>1</u>	-
None.....	15	1	14	1	2	-	-	-	-	<u>11</u>

- Represents zero.

Table 86. Comparison of Census and Reinterview Responses for Extra Payment for Electricity, Non-Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with non-Negro head of household reported as occupied in multiunit structures in the reinterview and occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification				
	Total units	Not reported	Extra payment for electricity reported in census		
			Total reported	Pays extra	Doesn't pay extra
Total units.....	1,220	319	901	690	211
Not reported.....	290	237	53	42	11
Reported.....	930	82	848	648	200
Pays extra.....	701	57	644	<u>627</u>	17
Doesn't pay extra.....	229	25	204	21	<u>183</u>

Table 87. Comparison of Census and Reinterview Responses for Extra Payment for Gas, Non-Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with non-Negro head of household reported as occupied in multiunit structures in the reinterview and occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification				
	Total units	Not reported	Extra payment for gas reported in census		
			Total reported	Pays extra	Doesn't pay extra
Total units.....	1,220	322	898	471	427
Not reported.....	296	238	58	29	29
Reported.....	924	84	840	442	398
Pays extra.....	496	39	457	<u>410</u>	47
Doesn't pay extra.....	428	45	383	32	<u>351</u>

Table 88. Comparison of Census and Reinterview Responses for Extra Payment for Water, Non-Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with non-Negro head of household reported as occupied in multiunit structures in the reinterview and occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification				
	Total units	Not reported	Extra payment for water reported in census		
			Total reported	Pays extra	Doesn't pay extra
Total units.....	1,220	324	896	68	828
Not reported.....	293	236	57	4	53
Reported.....	927	88	839	64	775
Pays extra.....	96	18	78	<u>46</u>	32
Doesn't pay extra.....	831	70	761	18	<u>743</u>

Table 89. Comparison of Census and Reinterview Responses for Extra Payment for Other Fuels, Non-Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with non-Negro head of household reported as occupied in multiunit structures in the reinterview and occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification				
	Total units	Not reported	Extra payment for other fuels reported in census		
			Total reported	Pays extra	Doesn't pay extra
Total units.....	1,220	357	863	41	822
Not reported.....	355	247	108	5	103
Reported.....	865	110	755	36	719
Pays extra.....	65	13	52	25	27
Doesn't pay extra.....	800	97	703	11	692

Table 90. Comparison of Census and Reinterview Responses for Bathtub or Shower Facilities, Non-Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with non-Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification					
	Total units	Not reported	Bathtub or shower facilities reported in census			
			Total reported	For exclusive use of household	Used also by another household	No bathtub or shower
Total units.....	6,279	12	6,267	6,080	23	164
Not reported.....	25	-	25	22	2	1
Reported.....	6,254	12	6,242	6,058	21	163
Bathtub or shower for exclusive use of household.....	6,069	12	6,057	6,023	6	28
Bathtub or shower used also by another household.....	25	-	25	9	13	3
No bathtub or shower...	160	-	160	26	2	132

- Represents zero.

Table 91. Comparison of Census and Reinterview Responses for Flush Toilet Facilities, Non-Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with non-Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification					
	Total units	Not reported	Flush toilet facilities reported in census			
			Total reported	For exclusive use of household	Used also by another household	No flush toilet
Total units.....	6,279	16	6,263	6,109	19	135
Not reported.....	21	-	21	19	2	-
Reported.....	6,258	16	6,242	6,090	17	135
Flush toilet for exclusive use of household.	6,103	15	6,088	6,064	6	18
Flush toilet used also by another household..	23	-	23	9	11	3
No flush toilet.....	132	1	131	17	-	114

- Represents zero.

Table 92. Comparison of Census and Reinterview Responses for Telephone Availability, Non-Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimate. Data shown as numbers of sample housing units with non-Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification				
	Total units	Not reported	Telephone availability reported in census		
			Total reported	Phone available	Phone not available
Total units.....	6,278	36	6,242	5,763	479
Not reported.....	20	-	20	20	-
Reported.....	6,258	36	6,222	5,743	479
Phone available.....	5,811	28	5,783	5,661	122
Phone not available....	447	8	439	82	357

- Represents zero.

Table 93. Comparison of Census and Reinterview Responses for Year Structure Built, Non-Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with non-Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification								
	Total units	Not reported	Year structure built reported in census						
			Total reported	1969 or later	1965 to 1968	1960 to 1964	1950 to 1959	1940 to 1949	1939 or earlier
Total units...	6,278	124	6,154	149	565	748	1,444	789	2,459
Not reported.....	376	34	342	3	7	26	73	75	158
Reported.....	5,902	90	5,812	146	558	722	1,371	714	2,301
1969 or later.....	145	3	142	109	19	5	4	-	5
1965 to 1968.....	556	8	548	30	458	46	8	2	4
1960 to 1964.....	738	13	725	3	65	561	81	5	10
1950 to 1959.....	1,413	15	1,398	2	14	98	1,143	105	36
1940 to 1949.....	683	10	673	1	-	7	93	452	120
1939 or earlier.....	2,367	41	2,326	1	2	5	42	150	2,126

- Represents zero.

Table 94. Comparison of Census and Reinterview Responses for Value of Home, Non-Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated estimates. Data shown as numbers of single-family sample housing units with non-Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification													
	Total units	Not owned, tenure not reported, or value of home not reported	Value of home reported in census											
			Total reported	Less than \$5,000	\$5,000 to \$7,499	\$7,500 to \$9,999	\$10,000 to \$12,499	\$12,500 to \$14,999	\$15,000 to \$17,499	\$17,500 to \$19,999	\$20,000 to \$24,999	\$25,000 to \$34,999	\$35,000 to \$49,999	\$50,000 or more
Total units..	4,707	1,150	3,557	177	224	304	358	349	344	359	522	579	225	116
Not reported.....	1,150	883	267	17	21	30	31	33	19	21	31	44	13	7
Reported.....	3,557	267	3,290	160	203	274	327	316	325	338	491	535	212	109
Less than \$5,000...	122	20	102	78	18	2	1	-	1	-	1	1	-	-
\$5,000 to \$7,499...	175	17	158	50	78	23	3	-	3	1	-	-	-	-
\$7,500 to \$9,999...	200	8	192	18	60	93	18	2	1	-	-	-	-	-
\$10,000 to \$12,499.	405	35	370	9	28	117	152	48	10	3	2	-	-	1
\$12,500 to \$14,999.	194	6	188	1	1	12	74	81	15	1	3	-	-	-
\$15,000 to \$17,499.	409	27	382	4	12	11	44	124	147	30	7	3	-	-
\$17,500 to \$19,999.	265	12	253	-	2	3	16	32	69	111	17	2	1	-
\$20,000 to \$24,999.	536	26	510	-	3	6	15	20	64	155	216	28	2	1
\$25,000 to \$34,999.	745	48	697	-	1	7	4	7	14	34	278	389	12	1
\$35,000 to \$49,999.	338	29	309	-	-	-	-	2	1	3	16	112	165	10
\$50,000 or more....	168	39	129	-	-	-	-	-	-	-	1	-	32	96

- Represents zero.

Table 95. Summary Measures of Response Error for Selected Housing Characteristics Estimated from Response-Bias Type Reinterview, Non-Negro Head of Household: 1970 Census

(All estimates multiplied by 100)

Characteristic ¹	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class according to reinterview	Net difference rate ²	95-percent confidence interval for net difference rate
TENURE					
Owned or being bought.....	3	2.6 to 4.0	71.2	*-0.2	-0.5 to 0.1
Cooperative or condominium.....	22	11.7 to 40.7	0.3	*0.1	0.0 to 0.2
Rented for cash.....	2	1.9 to 3.2	25.9	*-0.2	-0.5 to 0.0
Occupied without payment of cash rent.	20	15.9 to 26.0	2.6	*0.3	0.0 to 0.6
L-fold index.....	4	3.4 to 5.0	(X)	(X)	(X)
CONTRACT RENT					
Less than \$30.....	26	17.6 to 39.5	3.8	-1.2	-1.9 to -0.5
\$30 to \$39.....	10	5.2 to 17.9	3.7	*-0.1	-0.6 to 0.3
\$40 to \$49.....	15	9.9 to 21.9	6.4	*-0.5	-1.2 to 0.2
\$50 to \$59.....	11	7.0 to 15.7	8.3	*0.3	-0.4 to 1.0
\$60 to \$69.....	9	5.7 to 13.0	10.1	*-0.1	-0.7 to 0.6
\$70 to \$79.....	9	6.1 to 14.7	7.8	*0.0	-0.6 to 0.6
\$80 to \$89.....	10	6.9 to 15.5	8.6	*0.0	-0.7 to 0.7
\$90 to \$99.....	19	13.7 to 27.5	6.3	*-0.3	-1.1 to 0.5
\$100 to \$119.....	16	11.9 to 21.0	11.6	1.1	0.1 to 2.1
\$120 to \$149.....	9	6.8 to 12.9	17.0	*-0.2	-1.1 to 0.7
\$150 to \$199.....	10	7.3 to 14.9	11.0	*0.6	-0.2 to 1.4
\$200 to \$249.....	8	4.0 to 17.4	2.8	*0.3	0.0 to 0.7
\$250 to \$299.....	5	1.4 to 19.9	1.4	*-0.1	-0.5 to 0.1
\$300 or more.....	10	3.7 to 25.3	1.3	*0.3	0.0 to 0.7
L-fold index.....	12	10.2 to 13.8	(X)	(X)	(X)
NUMBER OF UNITS IN STRUCTURE					
1 detached.....	4	3.4 to 5.1	74.0	*0.1	-0.3 to 0.4
1 attached.....	30	24.6 to 36.9	2.8	-0.4	-0.7 to 0.0
2.....	15	12.1 to 17.4	7.2	*0.2	-0.2 to 0.5
3-4.....	20	16.2 to 25.2	3.3	*0.1	-0.2 to 0.4
5-9.....	24	18.8 to 30.1	2.5	*-0.1	-0.3 to 0.2
10-19.....	26	20.5 to 32.8	2.3	*0.0	-0.2 to 0.3
20-49.....	21	16.7 to 27.4	2.7	-0.4	-0.6 to -0.1
50 or more.....	16	12.0 to 22.3	1.9	0.4	0.1 to 0.6
Mobile home.....	4	2.4 to 6.5	3.2	*-0.1	-0.2 to 0.0
Other.....	91	57.5 to 142.7	0.1	0.2	0.1 to 0.4
L-fold index.....	12	11.2 to 13.9	(X)	(X)	(X)
NUMBER OF BEDROOMS					
No bedroom.....	34	20.1 to 55.9	0.9	-0.4	-0.6 to -0.1
1 bedroom.....	14	11.0 to 17.0	10.9	0.9	0.2 to 1.4
2 bedrooms.....	16	13.6 to 17.9	33.9	*-0.5	-1.4 to 0.5
3 bedrooms.....	17	14.6 to 18.9	40.0	*-0.5	-1.5 to 0.5
4 bedrooms.....	21	17.2 to 24.7	10.5	*0.6	-0.1 to 1.3
5 or more bedrooms.....	23	17.8 to 40.0	3.8	*-0.1	-0.6 to 0.4
L-fold index.....	17	15.4 to 18.7	(X)	(X)	(X)
PIPED WATER					
Hot and cold piped water.....	15	11.2 to 20.2	97.6	*-0.1	-0.4 to 0.1
Cold water only.....	32	24.7 to 42.1	1.4	*0.1	-0.2 to 0.3
No piped water.....	14	9.3 to 23.1	1.0	*0.1	-0.1 to 0.2
L-fold index.....	20	15.4 to 25.8	(X)	(X)	(X)

See footnotes at end of table.

Table 95. Summary Measures of Response Error for Selected Housing Characteristics Estimated from Response-Bias Type Reinterview, Non-Negro Head of Household: 1970 Census—Con.

(All estimates multiplied by 100)

Characteristic ¹	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class according to reinterview	Net difference rate ²	95-percent confidence interval for net difference rate
KITCHEN FACILITIES					
Complete facilities for exclusive use of household.....	33	25.1 to 42.6	98.5	*0.2	-0.1 to 0.4
Complete facilities also used by another household.....	(S)	(S)	0.1	(S)	(S)
No complete facilities.....	29	21.7 to 38.6	1.5	*-0.1	-0.3 to 0.1
L-fold index.....	33	25.1 to 42.5	(X)	(X)	(X)
HEATING EQUIPMENT					
Steam or hot water.....	15	13.2 to 16.7	20.5	-1.7	-2.2 to -1.1
Central warm-air.....	19	17.2 to 20.3	51.4	-1.9	-2.6 to -1.1
Built-in electric.....	32	26.8 to 37.8	2.8	1.5	1.1 to 1.9
Floor furnace.....	34	30.5 to 38.0	9.2	-1.0	-1.6 to -0.4
Heater with flue.....	39	35.6 to 43.4	8.2	2.5	1.9 to 3.2
Heater without flue.....	41	35.7 to 47.4	3.8	0.7	0.2 to 1.2
Portable heater.....	37	31.8 to 43.7	3.8	*-0.3	-0.7 to 0.1
No equipment.....	28	16.6 to 47.7	0.4	*0.1	-0.0 to 0.2
L-fold index.....	25	23.7 to 26.6	(X)	(X)	(X)
NUMBER OF ROOMS					
1 room.....	40	26.8 to 59.3	0.4	0.2	0.1 to 0.4
2 rooms.....	44	36.4 to 53.9	1.9	*0.0	-0.3 to 0.3
3 rooms.....	28	24.5 to 31.5	8.6	-0.9	-1.5 to -0.4
4 rooms.....	34	31.8 to 36.8	18.4	*0.8	-0.1 to 1.6
5 rooms.....	46	43.2 to 48.2	24.8	1.3	0.2 to 2.3
6 rooms.....	52	49.3 to 54.8	22.9	*0.1	-1.0 to 1.2
7 rooms.....	58	54.5 to 62.3	12.8	*-0.8	-1.7 to 0.1
8 rooms.....	60	54.8 to 66.6	6.1	*-0.4	-1.1 to 0.3
9 or more rooms.....	38	32.7 to 44.0	4.1	*-0.3	-0.7 to 0.2
L-fold index.....	46	44.0 to 47.0	(X)	(X)	(X)

X Not applicable.

* Indicates net difference rate is not significantly different from zero at the 95-percent confidence level.

S Does not meet publication standards.

¹The universes of analysis for these characteristics are described in table E.

²A negative value of the net difference rate indicates that the estimated percent in class based on census responses is less than the estimated percent in class based on the reinterview responses; a positive value indicates the opposite.

Table 96. Comparison of Census and Reinterview Responses for Tenure, Non-Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with non-Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification						
	Total units	Not reported	Tenure reported in census				
			Total reported	Owned	Cooperative or condominium	Rented for cash	Occupied without payment of cash rent
Total units.....	6,278	25	6,253	4,501	26	1,552	174
Not reported.....	227	4	223	218	-	4	1
Reported.....	6,051	21	6,030	4,283	26	1,548	173
Owned.....	4,312	19	4,293	4,248	6	10	29
Cooperative or condominium.....	20	-	20	2	18	-	-
Rented for cash.....	1,562	1	1,561	21	2	1,526	12
Occupied without payment of cash rent.....	157	1	156	12	-	12	132

- Represents zero.

Table 97. Comparison of Census and Reinterview Responses for Contract Rent, Non-Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of rented sample housing units with non-Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification																
	Total units	NA, not rented, or not reported	Total reported	Contract rent reported in census													
				\$0 to \$30	\$30 to \$39	\$40 to \$49	\$50 to \$59	\$60 to \$69	\$70 to \$79	\$80 to \$89	\$90 to \$99	\$100 to \$119	\$120 to \$149	\$150 to \$199	\$200 to \$249	\$250 to \$299	\$300 or more
Total units.....	6,036	4,515	1,521	41	55	88	132	154	119	129	90	192	253	178	48	18	24
NA, not rented, or not reported.....	4,502	4,461	41	3	2	1	5	5	4	2	2	4	4	6	2	-	1
Total reported.....	1,534	54	1,480	38	53	87	127	149	115	127	88	188	249	172	46	18	23
\$0 to \$30.....	71	15	56	35	2	1	2	1	1	-	-	6	2	4	-	-	1
\$30 to \$39.....	58	3	55	1	49	2	2	-	-	-	-	1	-	-	-	-	-
\$40 to \$49.....	98	4	94	2	1	78	6	2	2	1	1	-	-	-	-	-	1
\$50 to \$59.....	127	4	123	-	-	2	113	4	-	2	-	1	1	-	-	-	-
\$60 to \$69.....	154	4	150	-	-	2	1	138	5	1	2	1	-	-	-	-	-
\$70 to \$79.....	119	4	115	-	-	-	1	1	105	4	2	2	-	-	-	-	-
\$80 to \$89.....	131	4	127	-	-	1	1	1	1	115	6	2	-	-	-	-	-
\$90 to \$99.....	99	6	93	-	-	1	-	-	1	2	74	10	3	1	-	-	1
\$100 to \$119.....	176	4	172	-	1	-	1	1	-	1	3	155	8	2	-	-	-
\$120 to \$149.....	254	2	252	-	-	-	-	1	-	-	-	8	231	12	-	-	-
\$150 to \$199.....	166	3	163	-	-	-	-	-	-	-	-	2	4	152	5	-	-
\$200 to \$249.....	42	1	41	-	-	-	-	-	-	-	-	-	-	1	40	-	-
\$250 to \$299.....	20	-	20	-	-	-	-	-	-	-	-	-	-	-	1	18	1
\$300 or more.....	19	-	19	-	-	-	-	-	-	-	-	-	-	-	-	-	19

- Represents zero.

Table 98. Comparison of Census and Reinterview Responses for Number of Units in Structure, Non-Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with non-Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification												
	Total units	Not reported	Number of units in structure reported in census										
			Total reported	1 detached	1 attached	2	3-4	5-9	10-19	20-49	50 or more	Mobile home	Other
Total units.....	6,278	31	6,247	4,630	156	458	210	153	143	144	142	194	17
Not reported.....	2	-	2	2	-	-	-	-	-	-	-	-	-
Reported.....	6,276	31	6,245	4,628	156	458	210	153	143	144	142	194	17
1 detached.....	4,646	22	4,624	4,576	8	18	4	2	-	-	1	4	11
1 attached.....	179	1	178	9	118	31	10	7	2	-	-	-	1
2.....	451	3	448	22	13	392	13	4	1	-	-	-	3
3-4.....	206	1	205	3	6	16	167	10	2	-	-	-	1
5-9.....	157	-	157	2	8	-	11	119	7	3	7	-	-
10-19.....	142	1	141	2	2	-	4	9	106	9	9	-	-
20-49.....	169	2	167	1	1	-	1	2	24	123	15	-	-
50 or more.....	120	-	120	-	-	-	-	-	1	9	110	-	-
Mobile home.....	201	-	201	11	-	-	-	-	-	-	-	190	-
Other.....	5	1	4	2	-	1	-	-	-	-	-	-	1

- Represents zero.

Table 99. Comparison of Census and Reinterview Responses for Number of Bedrooms, Non-Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data for this item collected only for housing units receiving 5-percent census questionnaire. Data shown as numbers of sample housing units with non-Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification								
	Total units	Not reported	Number of bedrooms reported in census						
			Total reported	No bedrooms	1 bedroom	2 bedrooms	3 bedrooms	4 bedrooms	5 or more bedrooms
Total units...	3,093	23	3,070	17	363	1,027	1,210	340	113
Not reported.....	11	-	11	-	4	4	2	1	-
Reported.....	3,082	23	3,059	17	359	1,023	1,208	339	113
No bedrooms.....	28	-	28	15	12	-	1	-	-
1 bedroom.....	334	1	333	2	304	23	3	1	-
2 bedrooms.....	1,046	8	1,038	-	33	924	70	5	6
3 bedrooms.....	1,230	7	1,223	-	8	64	1,094	49	8
4 bedrooms.....	327	7	320	-	1	7	33	269	10
5 or more bedrooms..	117	-	117	-	1	5	7	15	89

- Represents zero.

**Table 100. Comparison of Census and Reinterview Responses for Piped Water,
Non-Negro Head of Household**

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with non-Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification					
	Total units	Not reported	Piped water reported in census			
			Total reported	Hot and cold piped water	Cold piped water only	No piped water
Total units.....	6,279	50	6,229	6,071	91	67
Not reported.....	9	-	9	9	-	-
Reported.....	6,270	50	6,220	6,062	91	67
Hot and cold piped water..	6,120	49	6,071	6,044	25	2
Cold piped water only.....	86	1	85	16	60	9
No piped water.....	64	-	64	2	6	56

- Represents zero.

**Table 101. Comparison of Census and Reinterview Responses for Kitchen Facilities,
Non-Negro Head of Household**

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with non-Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification					
	Total units	Not reported	Kitchen facilities reported in census			
			Total reported	For exclusive use of household	Also used by another household	No complete kitchen facilities
Total units.....	6,036	13	6,023	5,938	3	82
Not reported.....	24	-	24	23	-	1
Reported.....	6,012	13	5,999	5,915	3	81
Complete kitchen facil- ities for exclusive use of household.....	5,918	12	5,906	5,882	3	21
Complete kitchen facil- ities also used by another household.....	6	-	6	6	-	-
No complete kitchen facilities.....	88	1	87	27	-	60

- Represents zero.

Table 102. Comparison of Census and Reinterview Responses for Heating Equipment, Non-Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with non-Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification										
	Total units	Not reported	Heating equipment reported in census								
			Total reported	Steam or hot water	Central warm-air	Built-in electric	Floor furnace	Heaters with flue	Heaters without flue	Portable heater	No equipment
Total units.....	6,278	167	6,111	1,149	3,025	266	501	655	274	213	28
Not reported.....	21	1	20	4	10	-	-	1	2	3	-
Reported.....	6,257	166	6,091	1,145	3,015	266	501	654	272	210	28
Steam or hot water.....	1,291	43	1,248	1,054	134	27	7	14	9	3	-
Central warm-air.....	3,195	67	3,128	75	2,787	60	90	90	15	10	1
Built-in electric.....	184	11	173	-	9	152	5	2	1	3	1
Floor furnace.....	576	15	561	5	54	11	366	100	16	9	-
Heaters with flue.....	512	13	499	5	23	3	23	371	48	25	1
Heaters without flue.....	235	5	230	3	4	-	9	45	152	17	-
Portable heater.....	242	12	230	2	4	12	1	32	31	141	7
No equipment.....	22	-	22	1	-	1	-	-	-	2	18

- Represents zero.

Table 103. Comparison of Census and Reinterview Responses for Number of Rooms, Non-Negro Head of Household

(Data shown as numbers of sample units in Content Reinterview Study, not as inflated national estimates. Data shown as numbers of sample housing units with non-Negro head of household reported as occupied by the same household in census and reinterview. See paragraph 4 of limitations section of this report for discussion of noninterviews and matching problems)

Reinterview classification	Census classification											
	Total units	Not reported	Number of rooms reported in census									
			Total reported	1 room	2 rooms	3 rooms	4 rooms	5 rooms	6 rooms	7 rooms	8 rooms	9 or more rooms
Total units....	6,278	22	6,256	39	119	476	1,194	1,628	1,442	752	362	244
Not reported.....	22	-	22	-	-	-	3	3	6	4	4	2
Reported.....	6,256	22	6,234	39	119	476	1,191	1,625	1,436	748	358	242
1 room.....	24	-	24	19	3	1	-	-	-	-	1	-
2 rooms.....	119	1	118	14	67	27	8	2	-	-	-	-
3 rooms.....	534	-	534	3	38	376	106	8	2	-	1	-
4 rooms.....	1,147	3	1,144	1	8	58	843	200	24	8	1	1
5 rooms.....	1,552	7	1,545	2	1	9	176	1,046	269	33	7	2
6 rooms.....	1,433	5	1,428	-	1	4	36	308	859	187	28	5
7 rooms.....	803	3	800	-	-	-	12	50	217	379	114	28
8 rooms.....	385	2	383	-	1	1	7	6	50	111	160	47
9 or more rooms..	259	1	258	-	-	-	3	5	15	30	46	159

- Represents zero.

APPENDIXES

Appendix A. Census and Reinterview Questions for Housing Data

Item	Census question	Reinterview question
Telephone availability	H1. Is there a telephone on which people in your living quarters can be called? Yes → What is the number? _____ No _____ Phone number	144. Is there a telephone on which people in your living quarters can be called? <input type="checkbox"/> Yes - Number _____ <input type="checkbox"/> No
Access to living quarters	H2. Do you enter your living quarters— Directly from the outside or through a common or public hall? Through someone else's living quarters?	4. Which best describes access to the sample unit? <input type="checkbox"/> Directly from the outside or through a common or public hall <input type="checkbox"/> Through someone else's living quarters
Kitchen facilities	H3. Do you have <u>complete</u> kitchen facilities? <i>Complete kitchen facilities are a sink with piped water, a range or cook stove, and a refrigerator.</i> Yes, for this household only Yes, but also used by another household No complete kitchen facilities for this household	101. Now I would like to ask you some questions about your kitchen facilities. Do you have a kitchen sink with piped water? <input type="checkbox"/> Yes <input type="checkbox"/> No
		102. Do you have a refrigerator? <input type="checkbox"/> Yes <input type="checkbox"/> No - Skip to 104
		103. Is it gas or electric? <input type="checkbox"/> Yes - Gas or electric <input type="checkbox"/> No - Describe → _____ _____
		104. Do you have a gas or electric range or stove? <input type="checkbox"/> Yes - Gas or electric range or stove <input type="checkbox"/> No - What do you have for cooking? (Mark all that are reported) <input type="checkbox"/> A kerosene or gasoline stove <input type="checkbox"/> A wood, coal, or coke burning stove <input type="checkbox"/> An electric hot plate <input type="checkbox"/> Plug in electric cooking appliances <input type="checkbox"/> A fireplace <input type="checkbox"/> Something else - Explain → _____ _____ <input type="checkbox"/> None
		105. INTERVIEWER CHECK ITEM K (Item 2, page 1 and 101 - 104 above) <input type="checkbox"/> Single unit structure - Skip to 107 <input type="checkbox"/> Multi-unit structure with no kitchen facilities reported - Skip to 107 <input type="checkbox"/> Multi-unit structure with kitchen facilities reported - Continue with 106
		106. Are any of these kitchen facilities also used by another household? <input type="checkbox"/> Yes <input type="checkbox"/> No
Number of rooms	H4. How many rooms do you have in your living quarters? <i>Do not count bathrooms, porches, balconies, foyers, halls, or half-rooms.</i> 1 room 6 rooms 2 rooms 7 rooms 3 rooms 8 rooms 4 rooms 9 rooms or more 5 rooms	89. Now I would like to ask you about the rooms in your living quarters. How many rooms do you have? Enter numbers below
		90. How many of these are bedrooms?
		91. What are the other _____ rooms? (89 minus 90)
		Kitchen Dining room Living room Family room Recreation room Den or study

Appendix A. Census and Reinterview Questions for Housing Data—Continued

Item	Census question	Reinterview question
Number of rooms— Continued		92. Verify that entries in 90 and 91 total to the entry in 89. If not, read your list of rooms to the respondent in order to find the discrepancy. After verification, delete from 91 any space reported which is not to be counted as a room.
		93. Are any of these rooms combination rooms such as a living room/dining room or a dining room/kitchen? <input type="checkbox"/> No — Skip to 95 <input type="checkbox"/> Yes — Which rooms are these? _____ _____
		94. Are these separated by a partition from the floor to ceiling? <input type="checkbox"/> Yes <input type="checkbox"/> No } Correct 91 as appropriate and continue with 95.
		Enter numbers below _____
		95. Now I would like to ask you about other space which we might consider as a room. Do you have finished attic or finished basement rooms? <input type="checkbox"/> No — Continue with 96 <input type="checkbox"/> Yes — Are these included in the _____ rooms you have already told me about? ⁽⁸⁹⁾ <input type="checkbox"/> Yes — Continue with 96 <input type="checkbox"/> No — What are these rooms? Describe _____ _____ _____ _____ (Enter number of rooms) —>
		96. Do you have a permanently enclosed porch suitable for year-round use? <input type="checkbox"/> No — Continue with 97 <input type="checkbox"/> Yes — Is that included in the _____ rooms you have already told me about? ⁽⁸⁹⁾ <input type="checkbox"/> Yes — Continue with 97 <input type="checkbox"/> No —>
		97. Do you have a room used as an office by a member of this household? <input type="checkbox"/> No — Continue with 98 <input type="checkbox"/> Yes — Is that included in the _____ rooms you have already told me about? ⁽⁸⁹⁾ <input type="checkbox"/> Yes — Continue with 98 <input type="checkbox"/> No —>
		98. Do you have any rooms used by boarders or lodgers? <input type="checkbox"/> No — Continue with 99 <input type="checkbox"/> Yes — Are these included in the _____ rooms you have already told me about? ⁽⁸⁹⁾ <input type="checkbox"/> Yes — Continue with 99 <input type="checkbox"/> No — What are these rooms? Describe _____ _____ _____ (Enter number of rooms) —>
		Enter numbers below _____

Appendix A. Census and Reinterview Questions for Housing Data—Continued

Item	Census question	Reinterview question
Number of rooms— Continued		<p>99. Do you have any other space that might be considered a room? (Read as examples room types from the list in 91 which have not been mentioned.)</p> <p><input type="checkbox"/> No — Continue with 100</p> <p><input type="checkbox"/> Yes — Describe →</p> <hr/> <hr/> <hr/> <hr/> <div style="border: 1px solid black; padding: 5px;"> <p>Include as a room, a whole room used for living quarters.</p> <p>Do not include bathrooms, halls, foyers or vestibules, balconies, closets, alcoves, pantries, strip or pullman kitchens; laundry, utility, or furnace rooms; unfinished attics or basements; other unfinished space used for storage; open porches; trailers used only as bedrooms; and offices used only by persons not living in the unit.</p> </div> <p>If these qualify as a room ask:</p> <p>Is that included in the _____ rooms you have already told me about? (89)</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No →</p>
		<p>TOTAL ROOMS</p> <hr/> <p>100. Add entries in 90 – 99 and enter total rooms →</p>
Hot water	<p>H5. Is there hot and cold piped water in this building?</p> <p>Yes, hot and cold piped water in this building</p> <p>No, only cold piped water in this building</p> <p>No piped water in this building</p>	<p>113. Do you have piped HOT water in this building?</p> <p><input type="checkbox"/> Yes — Skip to 117</p> <p><input type="checkbox"/> No — Continue with 114</p> <hr/> <p>114. Do you have piped COLD water in this building?</p> <p><input type="checkbox"/> Yes — Continue with 115</p> <p><input type="checkbox"/> No — Skip to 116</p> <hr/> <p>115. How do you get your HOT water? (Explain and skip to 117)</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <p>116. How do you get your water?</p> <p><input type="checkbox"/> From a pump, faucet, etc. on this property</p> <p><input type="checkbox"/> From source off this property</p> <p><input type="checkbox"/> Other — Describe ——</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>

Appendix A. Census and Reinterview Questions for Housing Data—Continued

Item	Census question	Reinterview question
Flush toilet and bathtub or shower facilities	<p>H6. Do you have a flush toilet?</p> <p>Yes, for this household only</p> <p>Yes, but also used by another household</p> <p>No flush toilet</p>	<p>107. Now I would like to ask some questions about your bathroom facilities.</p> <p>How many bathrooms do you have in this (house) ? (apartment) ?</p> <p><input type="checkbox"/> None — Skip to 109</p> <p><input type="checkbox"/> One bathroom</p> <p><input type="checkbox"/> Half bath(s) only } Continue with 108</p> <p><input type="checkbox"/> More than one bathroom — Skip to 113</p>
	<p>H7. Do you have a bathtub or shower?</p> <p>Yes, for this household only</p> <p>Yes, but also used by another household</p> <p>No bathtub or shower</p>	<p>108. Does it include —</p> <p>-- a flush toilet?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p>-- a bathtub or shower?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p style="text-align: right;">Skip to 111</p>
		<p>109. Do you have a flush toilet for your use inside this building?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>
		<p>110. Do you have a bathtub or shower for your use inside this building?</p> <p><input type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p>
		<p>111. INTERVIEWER CHECK ITEM L (Item 2, page 1 and 108 — 110 above.)</p> <p><input type="checkbox"/> Single unit — Skip to 113</p> <p><input type="checkbox"/> Multi-unit with no bathroom facilities reported ↳ Skip to 113</p> <p><input type="checkbox"/> Multi-unit with bathroom facilities reported ↳ Continue with 112</p>
		<p>112. Are any of these facilities also used by another household?</p> <p><input type="checkbox"/> Yes → Which facilities? _____</p> <p><input type="checkbox"/> No</p>
Tenure	<p>H9. Are your living quarters—</p> <p>Owned or being bought by you or by someone else in this household? Do <u>not</u> include cooperatives and condominiums here.</p> <p>A cooperative or condominium which is owned or being bought by you or by someone else in this household?</p> <p>Rented for cash rent?</p> <p>Occupied without payment of cash rent?</p>	<p>117. INTERVIEWER CHECK ITEM M (Item 2, page 1)</p> <p><input type="checkbox"/> One family house — Continue with 118</p> <p><input type="checkbox"/> Multi-unit structure — Skip to 121</p>
		<p>118. Do you or does any member of your household own this home?</p> <p><input type="checkbox"/> Yes — Skip to 131</p> <p><input type="checkbox"/> No</p>
		<p>119. Are you buying it?</p> <p><input type="checkbox"/> Yes — Skip to 131</p> <p><input type="checkbox"/> No</p>
		<p>120. Do you rent it?</p> <p><input type="checkbox"/> Yes — Skip to 126</p> <p><input type="checkbox"/> No — Skip to 124</p>
		<p>121. Do you or does any member of your household pay rent for this (apartment) ? (room) ?</p> <p><input type="checkbox"/> Yes — Skip to 126</p> <p><input type="checkbox"/> No</p> <p>122. Do you or does any member of your household own this building or this apartment?</p> <p><input type="checkbox"/> Yes — Skip to 125</p> <p><input type="checkbox"/> No</p>

Appendix A. Census and Reinterview Questions for Housing Data—Continued

Item	Census question	Reinterview question								
Tenure—Continued		<p>123. Are you buying it?</p> <p><input type="checkbox"/> Yes — Skip to 125</p> <p><input type="checkbox"/> No</p> <p>124. Since you are not buying or renting this place, what arrangements have been made for you to live here? (Describe and check one box below)</p> <p>_____</p> <p>_____</p> <p> <input type="checkbox"/> Cash rent paid by another person living in this unit <input type="checkbox"/> Cash rent paid by an agency or person not living in this unit } Skip to 126 </p> <p> <input type="checkbox"/> Cash rent paid to owner is not considered rent . . . <input type="checkbox"/> No cash rent but payments made in goods or services <input type="checkbox"/> Neither cash rent nor other payment to owner <input type="checkbox"/> Cooperative or condominium } Skip to 135 </p> <p><input type="checkbox"/> Other — If owned, continue with 125; if rented, skip to 126; if neither, skip to 135</p> <p>125. Is this apartment owned or being bought as part of a cooperative or condominium?</p> <p><input type="checkbox"/> Yes a cooperative } Skip to 135</p> <p><input type="checkbox"/> Yes a condominium }</p> <p><input type="checkbox"/> No — Skip to 131</p>								
Value of home	<p>H11. If you live in a one-family house which you own or are buying—</p> <p>What is the value of this property; that is, how much do you think this property (house and lot) would sell for if it were for sale?</p> <p> <input type="checkbox"/> Less than \$5,000 <input type="checkbox"/> \$5,000 to \$7,499 <input type="checkbox"/> \$7,500 to \$9,999 <input type="checkbox"/> \$10,000 to \$12,499 <input type="checkbox"/> \$12,500 to \$14,999 <input type="checkbox"/> \$15,000 to \$17,499 <input type="checkbox"/> \$17,500 to \$19,999 <input type="checkbox"/> \$20,000 to \$24,999 <input type="checkbox"/> \$25,000 to \$34,999 <input type="checkbox"/> \$35,000 to \$49,999 <input type="checkbox"/> \$50,000 or more </p> <p>If this house is on a place of 10 acres or more, or if any part of this property is used as a commercial establishment or medical office, do not answer this question.</p>	<table border="1"> <thead> <tr> <th></th><th>Year</th></tr> </thead> <tbody> <tr> <td>132. When did you buy this house?</td><td>_____</td></tr> <tr> <td>133. How much did you pay for it?</td><td>\$ _____</td></tr> <tr> <td>134. About how much do you think this property, both house and lot, would sell for in today's market?</td><td>\$ _____</td></tr> </tbody> </table>		Year	132. When did you buy this house?	_____	133. How much did you pay for it?	\$ _____	134. About how much do you think this property, both house and lot, would sell for in today's market?	\$ _____
	Year									
132. When did you buy this house?	_____									
133. How much did you pay for it?	\$ _____									
134. About how much do you think this property, both house and lot, would sell for in today's market?	\$ _____									
Contract rent	<p>H12. Answer this question if you pay rent for your living quarters.</p> <p>a. If rent is paid by the month—</p> <p>What is the monthly rent?</p> <p>Write amount here → \$ _____ .00 (Nearest dollar)</p> <p>and</p> <p>Fill one circle</p> <p> <input type="radio"/> Less than \$30 <input type="radio"/> \$30 to \$39 <input type="radio"/> \$40 to \$49 <input type="radio"/> \$50 to \$59 <input type="radio"/> \$60 to \$69 <input type="radio"/> \$70 to \$79 <input type="radio"/> \$80 to \$89 <input type="radio"/> \$90 to \$99 <input type="radio"/> \$100 to \$119 <input type="radio"/> \$120 to \$149 <input type="radio"/> \$150 to \$199 <input type="radio"/> \$200 to \$249 <input type="radio"/> \$250 to \$299 <input type="radio"/> \$300 or more </p>	<p>126. How much rent do you pay?</p> <p><input type="checkbox"/> Week</p> <p>\$ _____ per <input type="checkbox"/> Month</p> <p><input type="checkbox"/> Other — Specify _____</p> <p>127. Does that rent cover the use of a shop, a store, or some other commercial establishment?</p> <p><input type="checkbox"/> Yes — Correct 126</p> <p><input type="checkbox"/> No</p> <p>128. Does that rent cover the use of living quarters other than this (house) ? (apartment)</p> <p><input type="checkbox"/> Yes — Correct 126</p> <p><input type="checkbox"/> No</p>								

Appendix A. Census and Reinterview Questions for Housing Data—Continued

[illegible]

Appendix A. Census and Reinterview Questions for Housing Data—Continued

Item	Census question	Reinterview question				
Heating equipment— Continued		<p>140. Classify type of heating equipment based on responses in 135–139.</p> <p><input type="checkbox"/> Steam or hot water system</p> <p><input type="checkbox"/> Central warm air furnace with ducts to the individual rooms, or central heat pump.</p> <p><input type="checkbox"/> Built-in electric units (permanently installed in wall, ceiling or baseboard)</p> <p><input type="checkbox"/> Floor, wall, or pipeless furnace</p> <p><input type="checkbox"/> Room heaters with flue or vent, burning gas, oil, or kerosene</p> <p><input type="checkbox"/> Room heaters without flue or vent, burning gas, oil, or kerosene (<i>Not portable</i>)</p> <p><input type="checkbox"/> Fireplaces, stoves, or portable room heaters of any kind</p> <p><input type="checkbox"/> In some other way</p> <p><input type="checkbox"/> None, unit has no heating equipment</p>				
Year structure built	<p>H15. About when was this building originally built? <i>Mark when the building was first constructed, not when it was remodeled, added to, or converted.</i></p> <p> <input type="radio"/> 1969 or 1970 <input type="radio"/> 1950 to 1959 <input type="radio"/> 1965 to 1968 <input type="radio"/> 1940 to 1949 <input type="radio"/> 1960 to 1964 <input type="radio"/> 1939 or earlier </p>	<p>141. As far as you know, has this building ever been remodeled?</p> <p> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know </p> <p style="text-align: right;">} <i>Skip to 143</i></p>				
		<table border="1" style="width: 100%;"> <tr> <td style="width: 80%;"></td><td style="width: 20%; text-align: center;">Year</td></tr> <tr> <td> <p>142. About when was this remodeling done?</p> </td><td></td></tr> </table>		Year	<p>142. About when was this remodeling done?</p>	
	Year					
<p>142. About when was this remodeling done?</p>						
		<p>143. About when was this building originally built?</p> <p> <input type="checkbox"/> 1969 or later <input type="checkbox"/> 1965 to 1968 (2–5 years ago) <input type="checkbox"/> 1960 to 1964 (6–10 years ago) <input type="checkbox"/> 1950 to 1959 (11–20 years ago) <input type="checkbox"/> 1940 to 1949 (21–30 years ago) <input type="checkbox"/> 1939 or earlier (31 years ago or more) <input type="checkbox"/> Don't know </p>				
Size of structure	<p>H16. Which best describes this building? <i>Include all apartments, flats, etc., even if vacant.</i></p> <p> <input type="checkbox"/> A one-family house detached from any other house <input type="checkbox"/> A one-family house attached to one or more houses <input type="checkbox"/> A building for 2 families <input type="checkbox"/> A building for 3 or 4 families <input type="checkbox"/> A building for 5 to 9 families <input checked="" type="checkbox"/> A building for 10 to 19 families <input type="checkbox"/> A building for 20 to 49 families <input type="checkbox"/> A building for 50 or more families <input type="checkbox"/> A mobile home or trailer Other— Describe _____ </p>	<p>2. Which best describes this building? <i>(Count vacant as well as occupied units)</i></p> <p> <input type="checkbox"/> A one-family house detached from any other house <input type="checkbox"/> A one-family house attached to one or more houses <input type="checkbox"/> A building for 2 families <input type="checkbox"/> A building for 3 or 4 families <input type="checkbox"/> A building for 5 to 9 families <input type="checkbox"/> A building for 10 to 19 families <input type="checkbox"/> A building for 20 to 49 families <input type="checkbox"/> A building for 50 or more families <input type="checkbox"/> A mobile home or trailer <input type="checkbox"/> Other </p> <p style="text-align: right;">} <i>Continue with item 3</i></p> <p style="text-align: right;">} <i>Skip to item 4</i></p> <p>→ Describe _____</p> <p>_____</p> <p>_____</p> <p>_____</p>				

Appendix A. Census and Reinterview Questions for Housing Data—Continued

Item	Census question	Reinterview question																								
Heating fuel	<p>H25a. Which fuel is used most for cooking? <input checked="" type="checkbox"/></p> <p>Gas <input type="checkbox"/> From underground pipes serving the neighborhood. <input type="checkbox"/> Coal or coke <input type="checkbox"/> Bottled, tank, or LP <input type="checkbox"/> Wood <input type="checkbox"/> Electricity <input type="checkbox"/> Other fuel <input type="checkbox"/> Fuel oil, kerosene, etc. <input type="checkbox"/> No fuel used <input type="checkbox"/></p> <p>b. Which fuel is used most for house heating? <input checked="" type="checkbox"/></p> <p>Gas <input type="checkbox"/> From underground pipes serving the neighborhood. <input type="checkbox"/> Coal or coke <input type="checkbox"/> Bottled, tank, or LP <input type="checkbox"/> Wood <input type="checkbox"/> Electricity <input type="checkbox"/> Other fuel <input type="checkbox"/> Fuel oil, kerosene, etc. <input type="checkbox"/> No fuel used <input type="checkbox"/></p> <p>c. Which fuel is used most for water heating? <input checked="" type="checkbox"/></p> <p>Gas <input type="checkbox"/> From underground pipes serving the neighborhood. <input type="checkbox"/> Coal or coke <input type="checkbox"/> Bottled, tank, or LP <input type="checkbox"/> Wood <input type="checkbox"/> Electricity <input type="checkbox"/> Other fuel <input type="checkbox"/> Fuel oil, kerosene, etc. <input type="checkbox"/> No fuel used <input type="checkbox"/></p>	<p>135. Now I would like to ask how your living quarters are heated.</p> <p>What heating fuel is used? (Mark one; if two or more are given, mark most used or main fuel)</p> <p><input type="checkbox"/> Gas — Mark type <input checked="" type="checkbox"/></p> <p><input type="checkbox"/> Piped gas serving the neighborhood</p> <p><input type="checkbox"/> Bottled, tank, or LP</p> <p><input type="checkbox"/> Fuel oil</p> <p><input type="checkbox"/> Coal</p> <p><input type="checkbox"/> Electricity</p> <p><input type="checkbox"/> Wood</p> <p><input type="checkbox"/> Kerosene</p> <p><input type="checkbox"/> Other — Specify _____</p> <p><input type="checkbox"/> Don't know</p> <p><input type="checkbox"/> Not heated — Skip to 140 and mark "None" box</p>																								
Number of bedrooms	<p>H26. How many bedrooms do you have?</p> <p>Count rooms used mainly for sleeping even if used also for other purposes.</p> <p><input type="checkbox"/> No bedroom <input type="checkbox"/> 3 bedrooms <input type="checkbox"/> 1 bedroom <input checked="" type="checkbox"/> 4 bedrooms <input type="checkbox"/> 2 bedrooms <input type="checkbox"/> 5 bedrooms or more</p>	<p>89. Now I would like to ask you about the rooms in your living quarters.</p> <p>How many rooms do you have?</p> <p>Enter numbers below</p> <p>90. How many of these are bedrooms?</p> <table border="1"> <thead> <tr> <th rowspan="2">91. What are the other (89 minus 90) rooms?</th><th colspan="2">Name of rooms</th></tr> </thead> <tbody> <tr> <td></td><td></td><td></td></tr> <tr> <td></td><td>Kitchen</td><td></td></tr> <tr> <td></td><td>Dining room</td><td></td></tr> <tr> <td></td><td>Living room</td><td></td></tr> <tr> <td></td><td>Family room</td><td></td></tr> <tr> <td></td><td>Recreation room</td><td></td></tr> <tr> <td></td><td>Den or study</td><td></td></tr> </tbody> </table>	91. What are the other (89 minus 90) rooms?	Name of rooms						Kitchen			Dining room			Living room			Family room			Recreation room			Den or study	
91. What are the other (89 minus 90) rooms?	Name of rooms																									
	Kitchen																									
	Dining room																									
	Living room																									
	Family room																									
	Recreation room																									
	Den or study																									
Extra payment for electricity, gas, water, and other fuels	<p>H13. Answer question H13 if you pay rent for your living quarters.</p> <p>In addition to the rent entered in H12, do you also pay for—</p> <p>a. Electricity?</p> <p><input type="checkbox"/> Yes, average monthly cost is \$ _____ .00 <input type="checkbox"/> No, included in rent <input type="checkbox"/> Average monthly cost <input type="checkbox"/> No, electricity not used</p> <p>b. Gas?</p> <p><input type="checkbox"/> Yes, average monthly cost is \$ _____ .00 <input type="checkbox"/> No, included in rent <input type="checkbox"/> Average monthly cost <input type="checkbox"/> No, gas not used</p> <p>c. Water? <input checked="" type="checkbox"/></p> <p><input type="checkbox"/> Yes, yearly cost is \$ _____ .00 <input type="checkbox"/> No, included in rent or no charge <input type="checkbox"/> Yearly cost</p> <p>d. Oil, coal, kerosene, wood, etc.?</p> <p><input type="checkbox"/> Yes, yearly cost is \$ _____ .00 <input type="checkbox"/> No, included in rent <input type="checkbox"/> Yearly cost <input type="checkbox"/> No, these fuels not used</p>	<p>Not asked of household respondents.</p> <p>Asked only of structure respondents.</p>																								

Appendix B. Reconciliation Questions for Housing Data

NOTES:

Appendix B. Reconciliation Questions for Housing Data—Continued

Section V - HOUSING DATA - Continued	
<p align="center">Part E - HOT WATER</p> <p>In the Census it was reported that you have _____ in this building.</p> <p>(14)</p> <p>1. How did you get your HOT water last April? <i>(Probe to check whether PIPED and whether IN THIS BUILDING - describe below.)</i></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>NOTES: _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
<p><i>Ask if not answered above</i></p> <p>2. How did you get your COLD water last April? <i>(Probe to check whether PIPED and whether IN THIS BUILDING - describe below.)</i></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
<p>3. INTERVIEWER: Mark one based on information given above.</p> <p><input type="checkbox"/> Both HOT and COLD piped water in this building</p> <p><input type="checkbox"/> Only COLD piped water in this building</p> <p><input type="checkbox"/> NO piped water in this building</p>	<p>_____</p> <p>_____</p>

Appendix B. Reconciliation Questions for Housing Data—Continued

Section V - HOUSING DATA - Continued	
<p align="center">Part F - NUMBER OF ROOMS #1</p> <p>Now I would like to ask you a few additional questions about the rooms in your living quarters as they were last April.</p> <p>1. Can your (21) _____ and (21) _____ be completely closed off from each other; that is, is there a door between them?</p> <p><input type="checkbox"/> Yes - END PROBE for Part E <input type="checkbox"/> No</p>	<p>NOTES:</p>
<p>2. Is there a partition between these rooms?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No - END PROBE for Part E</p>	
<p>3. Does that partition go from floor to ceiling?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No - END PROBE for Part E</p>	
<p>4. Is that partition a wall, shelving, or cabinets?</p> <p><input type="checkbox"/> Wall <input type="checkbox"/> Shelving <input type="checkbox"/> Cabinets</p>	
<p align="center">Part G - NUMBER OF ROOMS #2</p>	
<p>1. Was the (22) _____ a finished or an unfinished room last April?</p> <p><input type="checkbox"/> Finished room <input type="checkbox"/> Unfinished room</p>	
<p>2. Was the (23) _____ used for living purposes or as utility or storage room?</p> <p><input type="checkbox"/> Used for living purposes <input type="checkbox"/> Used as a utility or storage room</p>	
<p>3. Was the (24) _____ permanently enclosed and suitable for year-round use (e.g., heated) last April?</p> <p><input type="checkbox"/> Yes - Permanently enclosed and suitable for year-round use last April. <input type="checkbox"/> No</p>	
<p align="center">Part H - NUMBER OF ROOMS #3</p>	
<p>1. Was the (25) _____ a finished or an unfinished room last April?</p> <p><input type="checkbox"/> Finished room <input type="checkbox"/> Unfinished room</p>	
<p>2. Was the (26) _____ used for living purposes or as utility or storage room?</p> <p><input type="checkbox"/> Used for living purposes <input type="checkbox"/> Used as a utility or storage room</p>	
<p>3. Was the (27) _____ permanently enclosed and suitable for year-round use (e.g., heated) last April?</p> <p><input type="checkbox"/> Yes - Permanently enclosed and suitable for year-round use last April. <input type="checkbox"/> No</p>	
<p align="center">Part I - NUMBER OF BEDROOMS</p>	
<p>We have two reports on the number of bedrooms in your living quarters. One report is that you have (28) _____ bedrooms and the other is that you have (29) _____ bedrooms.</p>	
<p>1. How many bedrooms did you have in your living quarters last April? (Enter number and describe doubtful cases below.)</p>	<p align="center">Number</p> <div style="border: 1px solid black; width: 100px; height: 30px;"></div>

Appendix C. Structure Respondent Questions for Housing Data

Section P – STRUCTURE RESPONDENT – Occupied Units	
<p>150. INTERVIEWER CHECK ITEM Q (Item 2, page 1, and items 118–125, page 23)</p> <p><input type="checkbox"/> Multi-unit structure – Sample unit occupied by owner – END INTERVIEW</p> <p><input type="checkbox"/> Multi-unit structure – Sample unit occupied by other than owner – Find structure respondent (see item 148) and continue with item 151</p>	<p>156. What fuel is used to heat _____ Fuel</p> <p>_____?</p> <p>(Apt. No. or location description of sample unit)</p>
<p>151. How many living quarters, both occupied and vacant, are in this building?</p> <p><input type="checkbox"/> 1 { Compare to answer in item 2, page 1. If these agree, END INTERVIEW. If they disagree, determine correct answer and change answer in 2 or 151 as appropriate. If "one" is correct, END INTERVIEW.</p> <p><input type="checkbox"/> 2 <input type="checkbox"/> 10 to 19</p> <p><input type="checkbox"/> 3 or 4 <input type="checkbox"/> 20 to 49</p> <p><input type="checkbox"/> 5 to 9 <input type="checkbox"/> 50 or more</p>	<p>157. What is the main method or type of equipment used to heat the apartments in this building? (Describe)</p> <p>_____</p> <p>_____</p>
<p>152. Has this building ever been remodeled?</p> <p><input type="checkbox"/> Yes – When? _____ (Year)</p> <p><input type="checkbox"/> No</p>	<p>158. Is that the main method used to heat each apartment or are there exceptions?</p> <p><input type="checkbox"/> Main method for each apartment – Skip to 160</p> <p><input type="checkbox"/> Exceptions</p>
<p>153. About when was this building originally built?</p> <p><input type="checkbox"/> 1969 or later</p> <p><input type="checkbox"/> 1965 to 1968 (2–5 years ago)</p> <p><input type="checkbox"/> 1960 to 1964 (6–10 years ago)</p> <p><input type="checkbox"/> 1950 to 1959 (11–20 years ago)</p> <p><input type="checkbox"/> 1940 to 1949 (21–30 years ago)</p> <p><input type="checkbox"/> 1939 or earlier (31 years ago or more)</p>	<p>159. How is _____ heated? (Describe)</p> <p>(Apt. No. or location description of sample unit)</p> <p>_____</p> <p>_____</p>
<p>154. What is the main fuel used to heat the living quarters in this building?</p> <p>Main fuel _____ – Continue with 155</p> <p>OR</p> <p><input type="checkbox"/> Not heated – Skip to 160 and mark "None" box</p>	<p>160. Mark one box below for the sample unit based on entries in 154–159.</p> <p><input type="checkbox"/> Steam or hot water system</p> <p><input type="checkbox"/> Central warm air furnace with ducts to the individual rooms, or central heat pump</p> <p><input type="checkbox"/> Built-in electric units (permanently installed in wall, ceiling, or baseboard)</p> <p><input type="checkbox"/> Floor, wall, or pipeless furnace</p> <p><input type="checkbox"/> Room heaters with flue or vent, burning gas, oil, or kerosene</p> <p><input type="checkbox"/> Room heaters without flue or vent, burning gas, oil, or kerosene (Not portable)</p> <p><input type="checkbox"/> Fireplaces, stoves, or portable room heaters of any kind</p> <p><input type="checkbox"/> In some other way</p> <p><input type="checkbox"/> None, unit is not heated</p>
<p>155. Is that the main fuel used to heat each apartment or are there exceptions?</p> <p><input type="checkbox"/> Main fuel for each apartment – Skip to 157</p> <p><input type="checkbox"/> Exceptions</p>	

Appendix C. Structure Respondent Questions for Housing Data—Continued

Section P – STRUCTURE RESPONDENT – Occupied (Continued)																							
<p>161. How much does _____ rent for? <i>(Apt. No. or location description of sample unit)</i></p> <p>\$ _____ per <input type="checkbox"/> Month <input type="checkbox"/> Week <input type="checkbox"/> Other – <i>Specify</i> _____</p> <p><input type="checkbox"/> Don't know</p>	<p>Notes</p>																						
<p>162. In addition to his rent, does the tenant also pay for –</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 10%;">Yes</th> <th style="width: 10%;">No</th> <th style="width: 10%;">Don't know</th> </tr> </thead> <tbody> <tr> <td>Electricity?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Gas?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Water?</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Any other fuel(s)?</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>					Yes	No	Don't know	Electricity?				Gas?				Water?				Any other fuel(s)?			
	Yes	No	Don't know																				
Electricity?																							
Gas?																							
Water?																							
Any other fuel(s)?																							
<p>163. Respondent for 151–162.</p> <div style="border: 1px solid black; height: 40px; margin-top: 10px; padding: 5px;">Name</div> <div style="border: 1px solid black; height: 40px; margin-top: 20px; padding: 5px;">Title</div> <p style="text-align: center; margin-top: 20px;"><i>END INTERVIEW</i></p>																							

Appendix D. Computation of Response Error Measures and Their 95-Percent Confidence Intervals

This section presents, with examples, the computational forms of the response error measures used in this report.

DISPLAY OF CROSS-TABULATED DATA																			
General procedure									Example of procedure										
Display of cross-tabulated data for characteristic with L categories ($L \geq 2$). The general term X_{ij} represents the number of unweighted sample elements in the i^{th} category in the reinterview and j^{th} category in the census.									Year structure built (artificial data)										
Reinterview ($i=1, \dots, L$)	Census ($j = 1, \dots, L$)								Reinterview	Census									
	Total	Not re-ported in census ²	Reported in census							Total	Not re-ported in census	Reported in census							
			Total re-ported	Cate-gory 1	Cate-gory 2	...	Cate-gory j	...				Cate-gory L	Total re-ported	1969 or later	1965 to 1968	1960 to 1964	1950 to 1959	1940 to 1949	1939 or earlier
Total	$n'..$ ¹								Total	1,325	64	1,261	46	122	169	321	175	428	
Not reported in reinterview ²									Not reported in reinterview	51	8	43	3	2	10	8	3	17	
Reported, total			$n..$ ³	$X_{.1}$	$X_{.2}$	...	$X_{.j}$	...	$X_{.L}$	Reported, total	1,274	56	1,218	43	120	159	313	172	411
Category 1			$X_{1.}$	X_{11}	X_{12}	...	X_{1j}	...	X_{1L}	1969 or later	43	5	38	27	6	1	3	0	1
Category 2			$X_{2.}$	X_{21}	X_{22}	...	X_{2j}	...	X_{2L}	1965 to 1968	124	2	122	11	85	14	8	0	4
.			.	.	.	.	.	.	.	1960 to 1964	173	13	160	2	20	111	18	5	4
.			.	.	.	.	.	.	.	1950 to 1959	306	12	294	0	4	27	237	12	14
Category j			$X_{j.}$	X_{j1}	X_{j2}	...	X_{jj}	...	X_{jL}	1940 to 1949	151	4	147	0	1	0	27	95	24
.			.	.	.	.	.	.	.	1939 or earlier	477	20	457	3	4	6	20	60	364
Category L			$X_{L.}$	X_{L1}	X_{L2}	...	X_{Lj}	...	X_{LL}										

¹ $n'..$ is the total number of sample cases. In the actual data tables, row 1 and column 1 contain the appropriate marginal totals.²In the actual data tables, row 2 and column 2 contain the numbers of cases for which there was no report for that item in either the census or reinterview.³ $n..$ is the total number of sample cases for which there was a report in both the census and reinterview; that is, the total sample cases minus the "not reported" cases.

COMPUTING NET DIFFERENCE RATE AND INDEX OF INCONSISTENCY

Net difference rate for category 1:

$$NOR = \frac{(X_{1.} - X_{.1})}{n..} \times (100), (i=1, \dots, L)$$

Net difference rate, year-built interval "1940 to 1949":

$$NOR = \frac{172 - 147}{1218} \times (100) = \frac{25}{1218} \times (100) = 2.05$$

Index of inconsistency for category 1:

$$I = \frac{(X_{1.} + X_{.1} - 2X_{11})}{\frac{1}{n..} [X_{1.}(n.. - X_{.1}) + X_{.1}(n.. - X_{1.})]} \times (100), (i=1, \dots, L)$$

Index of inconsistency, year-built interval "1940 to 1949":

$$I = \frac{[172 + 147 - 2(95)]}{\frac{1}{1218} [172(1218 - 147) + 147(1218 - 172)]} \times (100)$$

$$= \frac{319 - 190}{\frac{1}{1218} [172(1071) + 147(1046)]} \times (100)$$

$$= \frac{129}{277.48} \times (100) = 46.49$$

NOTE: X_{11} is on diagonal term.

L-fold index of inconsistency:

$$I_L = \frac{\left(n.. - \sum_{i=1}^L X_{ii} \right)}{\left(n.. - \frac{1}{n..} \sum_{i=1}^L X_{i.} X_{.i} \right)} \times (100)$$

L-fold index of inconsistency, year built:

$$I_L = \frac{1218 - (27 + 85 + 111 + 237 + 95 + 364)}{1218 - \frac{1}{1218} [(43)(38) + (120)(122) + (159)(160) + (313)(294) + (172)(147) + (411)(457)]} \times (100)$$

$$= \frac{1218 - 919}{1218 - \frac{1}{1218}(346,847)} \times (100) = 32.04$$

Appendix D. Computation of Response Error Measures and Their 95-Percent Confidence Intervals—Continued

COMPUTING 95-PERCENT CONFIDENCE INTERVALS

95-percent confidence interval of net difference rate for category i:
(i=1, ..., L)

95-percent confidence limits are

$$\frac{(X_{.i} - X_{.i.}) \pm 2 \sqrt{\frac{X_{.i} + X_{.i.} - 2X_{.ii}}{n_{..}}} + 1}{n_{..}} \times (100)$$

Exception:

a. If $(X_{.i} - X_{.i.}) = 0$, then widen the high 95-percent confidence limit by adding

$$\left[\frac{2}{n_{..}} \times (100) \right]$$

b. If $(X_{.i} - X_{.i.}) = 0$, then widen the low 95-percent confidence limit by subtracting

$$\left[\frac{2}{n_{..}} \times (100) \right]$$

c. If both a and b above, the 95-percent confidence limits are estimated as

$$\left[\frac{-4}{n_{..}} \times (100) \right] \text{ to } \left[\frac{+4}{n_{..}} \times (100) \right]$$

95-percent confidence interval of index of inconsistency for category i:
(i=1, ..., L)

1. If $\left(\frac{X_{.i} + X_{.i.} - 2X_{.ii}}{n_{..}} \right) \leq .10$, 95-percent confidence limits are

$$\frac{(X_{.i} + X_{.i.} - 2X_{.ii} + 2) \pm 2 \sqrt{\frac{X_{.i} + X_{.i.} - 2X_{.ii} + 1}{n_{..}}}}{X_{.i} \left(1 - \frac{X_{.i.}}{n_{..}} \right) + X_{.i.} \left(1 - \frac{X_{.i}}{n_{..}} \right)} \times (100)$$

2. If $\left(\frac{X_{.i} + X_{.i.} - 2X_{.ii}}{n_{..}} \right) > .10$, 95-percent confidence limits are

$$\frac{(X_{.i} + X_{.i.} - 2X_{.ii} + 2) \pm 2 \sqrt{\frac{1}{n_{..}} \left(\frac{X_{.i} + X_{.i.} - 2X_{.ii}}{n_{..}} \right) (n_{..} - X_{.i} - X_{.i.} + 2X_{.ii})}}{X_{.i} \left(1 - \frac{X_{.i.}}{n_{..}} \right) + X_{.i.} \left(1 - \frac{X_{.i}}{n_{..}} \right)} \times (100)$$

95-percent confidence interval of net difference rate for year-built interval "1940-1949":

1. Low 95-percent confidence limit is

$$\frac{(172 - 147) - 2 \sqrt{\frac{172 + 147 - 2(95) + 1}{1218}}}{1218} \times (100)$$

$$= \frac{25 - 2(11.40)}{1218} \times (100) = 0.18$$

2. High 95-percent confidence limit is

$$\frac{(172 - 147) + 2 \sqrt{\frac{172 + 147 - 2(95) + 1}{1218}}}{1218} \times (100)$$

$$= \frac{25 + 2(11.40)}{1218} \times (100) = 3.92$$

95-percent confidence interval of index of inconsistency for year-built interval "1940 to 1949":

$$1. \frac{172 + 147 - 2(95)}{1218} = .106$$

2. Low 95-percent confidence limit is

$$\frac{[172 + 147 - 2(95) + 2] - 2 \sqrt{\frac{1}{1218} [(172 + 147) - 2(95)] [1218 - 172 - 147 + 2(95)]}}{172 \left(1 - \frac{147}{1218} \right) + 147 \left(1 - \frac{172}{1218} \right)} \times (100)$$

$$= \frac{131 - 2(115.337)}{151.24 + 126.24} \times (100) = \frac{131 - 21.48}{277.48} \times (100) = 39.47$$

3. High 95-percent confidence limit is

$$\frac{[172 + 147 - 2(95) + 2] + 2 \sqrt{\frac{1}{1218} [(172 + 147) - 2(95)] [1218 - 172 - 147 + 2(95)]}}{172 \left(1 - \frac{147}{1218} \right) + 147 \left(1 - \frac{172}{1218} \right)} \times (100)$$

$$= \frac{131 + 21.48}{277.48} \times (100) = 54.95$$

95-percent confidence interval for L-fold index of inconsistency:

1. If $\left[\frac{n_{..} - \sum_{i=1}^L X_{.ii}}{n_{..}} \right] \leq .10$, 95-percent confidence limits are

$$\frac{\left(n_{..} - \sum_{i=1}^L X_{.ii} + 2 \right) \pm 2 \sqrt{n_{..} - \sum_{i=1}^L X_{.ii} + 1}}{\left(n_{..} - \frac{1}{n_{..}} \sum_{i=1}^L X_{.i} X_{.i.} \right)} \times (100)$$

2. If $\left[\frac{n_{..} - \sum_{i=1}^L X_{.ii}}{n_{..}} \right] > .10$, 95-percent confidence limits are

$$\frac{\left(n_{..} - \sum_{i=1}^L X_{.ii} + 2 \right) \pm 2 \sqrt{\frac{1}{n_{..}} \left(n_{..} - \sum_{i=1}^L X_{.ii} \right) \left(\sum_{i=1}^L X_{.ii} \right)}}{\left(n_{..} - \frac{1}{n_{..}} \sum_{i=1}^L X_{.i} X_{.i.} \right)} \times (100)$$

95-percent confidence interval for L-fold index of inconsistency, year built:

$$1. \frac{1218 - (27+85+111+237+95+364)}{1218} = .25$$

2. Low 95-percent confidence limit is

$$\frac{1218 - (27+85+111+237+95+364) - 2 \sqrt{\frac{1}{1218} [1218 - (27+85+111+237+95+364)] [27+85+111+237+95+364]}}{1218 - \frac{1}{1218} [(43)(38) + (120)(122) + (159)(160) + (313)(294) + (172)(147) + (411)(457)]} \times (100)$$

$$= \frac{1220 - 919 - 2(225.84)}{1218 - \frac{346,847}{1218}} \times (100) = \frac{301 - 2(15.02)}{933.23} \times (100) = 29.03$$

3. High 95-percent confidence limit is

$$\frac{1218 - (27+85+111+237+95+364) + 2 \sqrt{\frac{1}{1218} [1218 - (27+85+111+237+95+364)] [27+85+111+237+95+364]}}{1218 - \frac{1}{1218} [(43)(38) + (120)(122) + (159)(160) + (313)(294) + (172)(147) + (411)(457)]} \times (100)$$

$$= \frac{301 + 2(15.02)}{933.23} \times (100) = 35.47$$

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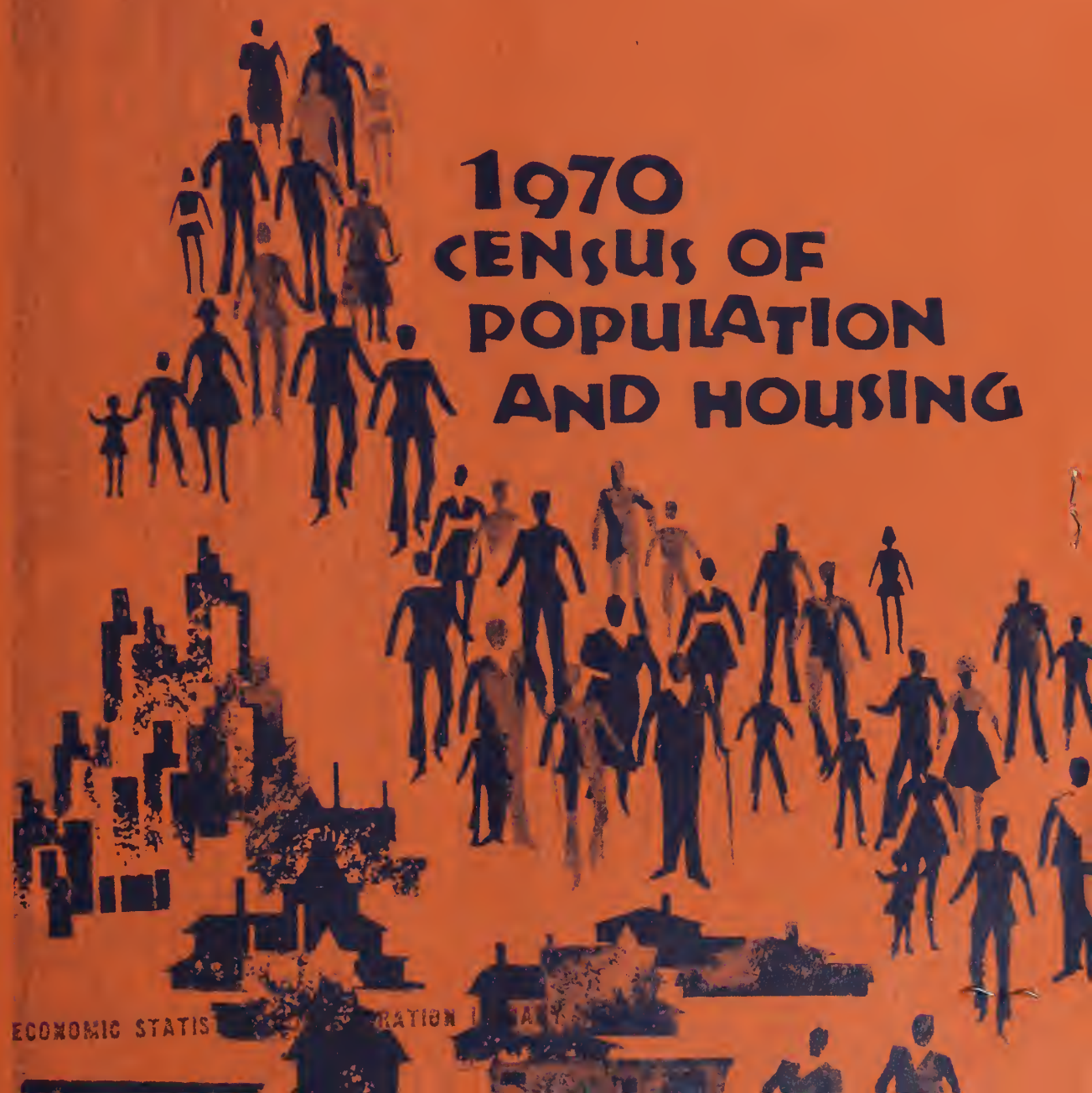
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Evaluation and Research Program

Accuracy of Data for Selected Population Characteristics as Measured by the 1970 CPS-Census Match



1970 CENSUS OF POPULATION AND HOUSING

U S DEPARTMENT
OF COMMERCE
Social and Economic
Statistics Administration

BUREAU OF
THE CENSUS

SOCIAL AND ECONOMIC STATISTICS DIVISION



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U. S. DEPARTMENT OF COMMERCE • Social and Economic Statistics Administration • BUREAU OF THE CENSUS

ERRATA

Page 3

3. Sampling Variability

[Line 6] replace—"That is, the chances are about 95 out of 100 that the interval includes the average value of the estimate of the response error measure that could be obtained from all possible samples."

with—"That is, if all possible samples were selected, each of these surveyed under essentially the same general conditions and an estimate and its estimated standard error were calculated from each sample, then approximately 95 percent of the intervals from two standard errors below the estimate to two standard errors above the estimate would include the average value of all possible samples. The average value of all possible samples may or may not be contained in any particular computed interval. But for a particular sample, one can say with specified confidence that the average of all possible samples is included in the constructed interval."

Page 4

4. Use of Response Error Measures in Evaluating the Quality of Data

Section 4 of the Measures of Response Error provides information on the use of response error measures in evaluating the quality of data. The reader may want to study how response errors affect the standard statistical techniques of analysis. Useful discussions of this subject may be found in the following references:

Cochran, W. G. "Errors of Measurement in Statistics," *Technometrics*, Vol. 10, No. 4, 1968, pp. 637-666.

_____. "Some Effects of Errors of Measurement on Multiple Correlation," *Journal of the American Statistical Association*, 65 (1970), pp. 22-34.

Koch, Gary G. "The Effect of Nonsampling Errors on Measures of Association in 2x2 Contingency Tables"; *Journal of the American Statistical Association*, 64 (1969), pp. 852-863.

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1970 CENSUS OF POPULATION AND HOUSING

Evaluation and Research Program

Accuracy of Data for Selected Population Characteristics as Measured by the 1970 CPS-Census Match

Issued January 1975



Preface

This is one of a series of reports on results of the Evaluation and Research Program of the 1970 Census of Population and Housing. The program includes a variety of studies, each designed to produce data on the accuracy of selected subject matter or on the effectiveness of specific methodological features of the census-taking process. The results from these studies are published in the PHC(E) series of reports.

This report presents data on the accuracy of selected population characteristics as measured by the 1970 CPS-Census Match Study.

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Accuracy of Data for Selected Population Characteristics as Measured by the 1970 CPS-Census Match

INTRODUCTION

The 1970 census evaluation and research program includes a number of studies which may be divided into two general categories:

- (1) Studies that measure "coverage" error, i.e., how completely persons and housing units were counted in the census. (See references 1, 2, and 3.)
- (2) Studies that measure "content" error, i.e., the accuracy of data for enumerated persons and housing units. (See reference 4.)

This report presents information on estimates of the content error associated with selected population characteristics as recorded in the 1970 Census of Population. These estimates of quality or content error were based on comparisons of data for identical persons included in both the 1970 census 20-percent sample and the March 1970 Current Population Survey. The universe for this study was restricted to persons enumerated as members of households (i.e., excludes persons living in group quarters such as rooming and boarding houses, jails, etc.). The Current Population Survey (CPS) is conducted by the Bureau of the Census as an ongoing national survey covering a sample of about 50,000 households. Its purpose is to provide monthly and annual data on the economic and social characteristics of the population.¹ The CPS is designated as the standard for comparison for some characteristics when the CPS data are believed to be more accurate than the census data. The CPS utilizes a staff of full-time, experienced interviewers and is conducted under more extensive controls and training procedures than the census.

This method of evaluating census data by comparing the results with those obtained in an independent survey is only one of the procedures used to evaluate the content of the 1970 decennial census. Reinterview of a sample of cases, which are then matched with the census returns [4], and record checks, the matching of data collected in the census with independent records of establishments, are two other methods utilizing case-by-case comparisons. In addition, there are analytic methods of evaluation such as demographic analysis and comparisons of statistical aggregates from the census with aggregated data for the same population groups from other sources. For example, school enrollment data from the census can be compared with the figures on enrollment from the Office of Education. (These types of studies were also included in the 1970 census evaluation and research program, and the results have been or will be reported in publications in the PHC(E) series.)

The 1970 Census of Population made available statistics on the demographic, social, and economic characteristics of the population such as age, sex, race, marital status, labor force activities, and income. Response error in these statistics could have resulted from erroneous or inconsistent reporting of characteristics, failure to obtain responses for some of the information requested, and errors in the clerical or machine processing of the data. The level of difference between published census and CPS data on population characteristics is also affected by differences in the computer editing and imputation procedures for unacceptable or missing data. In this study the comparison of CPS and census figures on a given subject reflects data in the final form after all editing and imputation procedures had been completed. Therefore, the data presented here reflect the quality of publication-level census statistics. The data in this report have not been inflated to national totals but represent actual counts of cases in the study.

Although there is considerable emphasis on geographic detail in the census, the analysis of the quality of the 1970 census is restricted to the national level. A separate evaluation of each area for which census data are presented is not feasible since the cost involved would be many times that of the census itself. The measures of error presented do not, therefore, necessarily apply to individual States, cities, or other local areas, but evidence has indicated that the factors involved in measurement error are fairly widespread and consistent throughout most areas of the country. For small areas (e.g., blocks, tracts, small towns) and for tabulation cells containing small frequencies, however, the reliability of the data may fluctuate from area to area or cell to cell. For such cases caution should be exercised in applying the measures of error shown in this report.

DESCRIPTION OF DATA PRESENTED

Estimates of gross error and net error or bias associated with census statistics are presented in this report for the following characteristics:

Age	Employment status
Sex	Work experience in 1969
Race	Occupation
Relationship to household head	Industry
Marital status	Class of worker
Years of school completed	Income in 1969
Veteran status	Poverty status in 1969

For each of these characteristics there is a table or set of tables showing estimates of the differences in classification between the census and the CPS for identical persons. Most tables concentrate on a detailed distribution of one characteristic. However, selected tables include estimates of difference for two or more characteristics considered jointly, (e.g., sex and age, race and age). In addition, many tables display not only the primary characteristic as classified in both sources but also

¹ A detailed description of the CPS appears in "Concepts and Methods Used in Manpower Statistics from the Current Population Survey," U.S. Bureau of the Census and U.S. Bureau of Labor Statistics, Current Population Reports, Series P-23, No. 22, June 1967.

provide information on demographic characteristics based on only one source. For instance, in table 22 the marital status classification in the census is distributed not only by the marital status classification in the CPS but also by the age, race, sex, and type of residence of the persons according to CPS. All tables are restricted to persons who were located in both sources, and many tables have additional restrictions. If the universe for a table is indicated as "persons 14 years old and over," for example, only those persons are included who were classified in that universe in both sources. The data in these tables provide for an analysis of the differences in absolute figures between the census and CPS. These data also provide the basis for calculating the measures of response or classification error shown in the corresponding index table or set of tables for each characteristic. Descriptions of the measures are presented in the following section, and the computational forms of these and other measures are shown in appendix B.

MEASURES OF RESPONSE ERROR

1. The Concept of Response Error

In simple terms, a response error results from the assignment of a person to an incorrect category in a classification system. For example, if a person belongs to the educational attainment category, 2 years college, a response error will result from the assignment of that person to one of the other education categories. Such errors affect census data in at least three ways: (1) the errors may introduce bias into the estimates of the population characteristic; (2) the errors create variability in the classification of an element over repeated trials and (3) the errors distort the relationships among variables. If only a single observation is available for each element, it is not possible to estimate directly the bias and variability associated with the classification process, although the bias may be estimated when data from an independent source are available. For the 1970 census evaluation programs, estimates of response error for a particular population characteristic were obtained by comparing, for identical persons, the responses obtained in the census and the responses obtained from another information source (e.g., the Current Population Survey (CPS), a reinterview, or a record source). For this study, the CPS reports are not error free, and it is not appropriate, therefore, to say that differences between the CPS and census reports for identical persons always reflect error in the census. Therefore, comparison of the CPS and census reports for some characteristics may reflect response differences to a greater extent than response errors. Even so, such comparisons provide an estimate of the variability in classification of an element over repeated trials and, therefore, provide meaningful insights into the quality of the census data. (See section 2.B.)

The effect of response errors on the quality of the data obtained for a particular category of a classification system is reflected by the level of net and gross error associated with that category. For a particular category, response errors produce misclassifications both into and out of the category. The net error associated with a category represents the difference between the number of persons erroneously included in the category and the number erroneously omitted from the category, whereas the gross error represents the sum of those numbers or the total number of response errors associated with the category. The net error reflects bias in the category, and the gross error reflects the variability in the classification process.

2. Summary Measures of Response Error

In this report, two measures of response error are presented for the comparison of CPS and census data for identical persons. One measure describes the amount of net error, and the other measure describes the amount of gross error associated with the data. Appendix B presents the formulas for computing the measures. All estimates of response error presented in this report have been multiplied by 100 so that the computed values can be discussed as percentages.

A. Measure of Net Error

The measure of net error or bias presented in this report is the **net difference rate**. The net difference rate for a particular category describes the absolute difference between the census proportion of persons in the category and the CPS proportion of persons in that category. A positive value of the net difference rate indicates that the proportion of persons in the category according to the census is greater than the corresponding CPS proportion, whereas a negative value indicates that the census proportion is less than the corresponding CPS proportion. A difference between the census and CPS estimates which is beyond that expected from sampling variability indicates bias in the census statistics when the CPS data are considered to be more accurate. For many of the characteristics included in this report, the CPS can be viewed as a more accurate source of data, and the net difference rate may be interpreted as a measure of bias. The index tables displayed in this report show the proportion of persons in a category according to the CPS as well as the net difference rate. The sum of these two values equals the proportion of persons in the category according to the census.

Another measure of bias for any category can also be derived. This measure, referred to as the **net shift**, is obtained by dividing the net difference rate for the category by the best estimate of the proportion of persons in that category—the CPS estimate for this report (the formula for this measure is also presented in appendix B). However, the net shift is not shown in this report since the net difference rate provides a somewhat more reliable estimate of bias (i.e., has a smaller sampling error).

B. Measure of Gross Error

The measure of gross error or response variability presented in this report is the **index of inconsistency**.

There are various ways of interpreting the index of inconsistency. Although each interpretation uses different terms, they are closely related. The interpretations are as follows:

- (i) If each of the two observations is regarded as an independent repetition of the same census or survey procedures, the index of inconsistency estimates the ratio of simple response variance to the total variance.²

The total variance of responses for a population equals the average simple response variance for the persons in the population (i.e., the variation among one person's responses over repeated independent trials) plus the sampling variance (i.e., the variance between persons). When identical responses are obtained from observation to observation for each person, the simple response

²The concept of response variance and this method of interpreting the index were originally developed by Hanson, Hurwitz, and Bershadt and are discussed fully in a number of references [15 and 16]. Interpretations (b) and (c) given in this section extensions of that original model [17].

variance is zero, and the value of the index of inconsistency is zero. When responses are so variable that simple response variance equals total variance, the value of the index is 100. The latter case is analogous to the situation that, in obtaining a single response from N individuals, we have nothing more reliable than could be obtained if one took any individual in the population and interviewed him N times independently.

- (ii) Consider each person in the population as having a cluster of potential responses which could be generated by independent repetition of the same census procedures. If two responses are selected at random from this cluster, the index of inconsistency is the complement of the average intraclass correlation (σ) among the responses for each person (that is, $I = 100(1-\sigma)$). When $\sigma = 1$, there is perfect positive correlation between the pairs of responses for all individuals, and the index equals zero. When $\sigma = 0$, there is no correlation between the pairs of responses, and the index equals 100. This interpretation of the index of inconsistency is analogous to that given in section (i) above.

Alternately, consider that there are two clusters of potential responses associated with each person, each being generated by an independent repetition of different procedures (e.g., the census and the CPS). If one response is selected at random from each cluster, the index of inconsistency is approximately the complement of the average correlation ($\rho GG'$) between the responses obtained using different procedures for each person (i.e., $I = 100(1-\rho GG')$ where G denotes the general survey conditions associated with one procedure and G' denotes the general survey conditions associated with the other procedure). When $\rho GG' = 1$, there is perfect positive correlation between the responses obtained for each procedure for each individual, and the index equals zero. When $\rho GG' = 0$, there is no correlation between the responses obtained for each procedure for each individual, and the index equals 100. (If the census estimate is biased, the correlation cannot be perfect and the index cannot be zero.) This interpretation is analogous to that given in section (iii) below.

- (iii) The index of inconsistency may also be interpreted as a standardized measure of response differences, in that the observed number of response differences is shown relative to a standard—the standard being the expected number of response differences that would occur if the pairs of observations were formed by random association. Under this interpretation, the index measures inconsistency on a scale from zero (perfect consistency) to 100 (complete lack of consistency).³

Under the conditions of this study, the level of difference observed between the CPS and census classifications for some

characteristics generally reflects that expected if the CPS were a replication of census procedures. For these characteristics (age, sex, race, relationship to household head, marital status, years of school completed, veteran status, occupation, industry, and class of worker), the interpretation of the index of inconsistency given in section (i) is the more appropriate. When, however, the second observation is not an attempt to repeat the original interview procedure, but may, for example, represent an improved data source, as is the case for the remaining characteristics (employment status, work experience, income, and poverty status), the estimated index of inconsistency is almost sure to be an understatement of the ratio of the simple response variance of the original interview procedure to the total variance. Thus, interpretation of the index in these terms, as given in section (i), is questionable. The interpretations of the index given in the latter part of section (ii) and in section (iii) are appropriate, however, even when the CPS cannot be considered a replication of the census procedure.

Values of the index of inconsistency are computed and displayed for each category in a distribution. For distributions with more than two categories, an index of inconsistency for the entire distribution, referred to as an **L-fold index of inconsistency**, is also displayed [18]. This index is a weighted average of the individual indexes computed for each category of the distribution. Conceptually, this measure is similar to the indexes computed for individual categories. That is, it expresses the ratio of the observed number of differences in the entire distribution to the number of response differences that would be expected to result from a random association between the L -fold classifications on the first and second observations.

The index of inconsistency is only one of several measures that might be used to describe the total number of response differences (gross error) associated with data. Several alternative measures, such as "gross difference rate," "gross shift," and "percent identically reported" are discussed in a number of references, [5] through [13]. From among these measures, the index of inconsistency was used for this analysis because it provides a basis for direct comparison of the consistency of responses between various details of classification for the same characteristic, between various methods of data collection, or from one census to another.

It should be recognized that the level of the index is sensitive to the detail of the categories in which the data are collected or tabulated. As the detail of the categories is decreased, the index cannot increase and will most likely decrease. Thus, the response variance associated with a particular distribution may be decreased to some extent by collapsing the categories of that distribution.

3. Sampling Variability

Measures of response error (index of inconsistency and net difference rate) presented in this report are based on a sample and are, therefore, subject to sampling variability. For this report, a 95-percent confidence interval has been constructed and is shown in the tables for each of the estimated response error measures. That is, the chances are about 95 out of 100 that the interval includes the average value of the estimate of the response error measure that could be obtained from all possible samples. These confidence intervals have been estimated from the sample results and provide a rough approximation of the extent of sampling error associated with each

³ When concerned with two different procedures rather than with a repeat of the same procedure, the theoretical upper limit for the estimated index of inconsistency is 200. This maximum would occur when there are only two categories, the population is distributed between the two categories in equal proportions, and there is a perfect negative correlation between the two observations for all persons. That is, persons classified as "in category" on the first observation are classified as "not in category" on the second observation and vice versa. The nature of the data collected and the data-collection procedures used lead us to expect a positive correlation between observations in this study. Thus, for the data collected in the CPS and the census it is assumed that the true value of any index is never greater than 100. Despite this assumption, a computed value of the index above 100 might occur as a result of sampling error. To reduce the risk of showing unreliable indexes, the index was not estimated unless at least 10 sample observations were reported as "in the category" by either the census or CPS.

estimate. The 95-percent confidence intervals were estimated by assuming that the sample design consisted of a simple random sample of persons rather than the design actually used (i.e., a stratified multistage systematic cluster sample of households). Thus, these intervals should be interpreted as providing an indication of only the minimum amount of sampling variability associated with the estimates. The formula used to compute the 95-percent confidence interval for each measure is provided in appendix B.

4. Use of Response Error Measures in Evaluating the Quality of Data

Of the two summary response error measures used in this report, the index of inconsistency probably provides the most information on the accuracy of the data collected, whereas the net difference rate can be used to adjust published census distributions. For categories in a distribution where the sample data provide evidence of bias and when the CPS data can be assumed to be more accurate, the net difference rate can be added to the published census percent in the class to correct for the bias. The index of inconsistency cannot be used to correct census distributions, but it provides insights into the reliability of the data presented in the published distributions (both simple distributions and cross-tabulations). For this report, both measures describe the effect of response errors which occurred in the field stage of enumeration as well as the effects of subsequent clerical and computer processing operations. Thus, these summary measures indicate the amount of inconsistency and bias associated with the published census data. Where a simple distribution of a characteristic is presented (e.g., persons by marital status), both the net difference rate and the index of inconsistency provide information about the quality of the data collected. The net difference rate and its 95-percent confidence interval indicate whether systematic errors in reporting have introduced biases into the distribution (provided that it can be assumed that the CPS data are more accurate than the census data). A bias in a particular category of a distribution is indicated when the 95-percent confidence interval of the net difference rate does not include zero as a possible value. As stated earlier, the sign on the limits of the interval indicates the direction of the bias—a positive value indicates that the estimated census percent in class is greater than the corresponding CPS percent, whereas a negative value indicates the opposite.

The indexes of inconsistency associated with a simple distribution are important in evaluating the adequacy of the data-collection method for providing valid measures of the characteristics in the distribution. For the purpose of evaluating the adequacy of a data-collection system, indexes under 20 are considered small, those between 20 and 50 are moderate, and those over 50 are large. Large values of the index for a particular statistic or entire distribution are an indication that (1) improvements are required in the method used to collect these data, (2) the concept itself may not be measurable by a household survey method, or (3) respondents are not able to provide accurate information to the detail desired. An additional point needs to be considered when evaluating the level of the index of inconsistency. The index of inconsistency is not sensitive to the magnitude of a response error. For example, in a distribution with ordinal categories, such as educational attainment, a difference in reporting of 1 year of school completed and a difference in reporting of 5 years of school completed are weighted equally in the index of inconsistency. Thus, for these types of distributions an examination of the detailed cross-

classification is required to determine the magnitude of the response errors.

For one characteristic presented in a cross-tabulation with another characteristic (e.g., education by income), erroneous classification into or out of the various categories of the distribution of either characteristic could introduce biases into the cross-tabulated data. In addition, the greater the index of inconsistency for each of the characteristics, the more likely it is that relationships between the characteristics are distorted. The expected effect is reduction of correlation among characteristics. For this study, indexes of inconsistency and net difference rates are provided for cross-tabulated data only in selected cases (e.g., age and sex). However, for cases in which indexes of inconsistency are shown separately for all or some of the characteristics in other cross-tabulations of interest (e.g., for education and for income), the indexes may serve as a guide in making inferences about the quality of the cross-tabulated data.

If the indexes of inconsistency associated with each of the characteristics involved in the cross-tabulation are large (over 50), it is likely that the cross-tabulated data are subject to serious biases. In such cases, the user is advised to exercise caution when using the data, particularly when inferences regarding the relationships between the characteristics are desired. Conversely, if the indexes of inconsistency associated with each of the characteristics are small (under 20), the user can be somewhat more confident about the accuracy of the cross-tabulated data.

There are no specific guidelines which are appropriate for levels between these extremes (i.e., moderate level indexes as well as combinations of levels). For these situations the user should again exercise caution when using the data and recognize that even a moderate degree of inconsistency in one or all of the characteristics can produce serious distortions in cross-tabulated data.

SUMMARY OF RESULTS

Presented below are summaries of results for each characteristic included in this study. The detailed data and index tables on which the analyses are based are included in the following section.

1. Age, Race, and Sex

Response variability and response bias of data on the age of the population appear to be small compared to response errors for other types of census data. Because of the importance of age as a demographic characteristic, however, the quality of the age data is discussed here in some detail.

The indexes of inconsistency for age groups shown in tables 11 to 18 indicate the degree to which reporting of age is subject to response variance. In particular, they show the actual number of response differences for age as a percent of the number of response differences expected on the assumption that there is no correlation between the responses on age in the CPS and in the census (i.e., that the two sets of responses on age are randomly distributed). Because of the pervasive role of age as a characteristic in cross-classification, the level of response variance for age is extremely important. Even small levels of inconsistency in reporting age may have a serious effect on the quality of data in which age and other characteristics are cross-classified.

Inconsistency in reporting age shows a general tendency to increase with age. The estimated indexes of inconsistency for 5-year age groups range from 4 to 7 percent for the age groups under 30 and from 10 to 12 percent for the age groups from 60 to 74. The L-fold indexes of inconsistency for age, which are weighted averages of the age-specific indexes and, hence, summarize the individual indexes over entire age distributions, are generally small, that is, less than 10 percent or not far above it. This is true whether the age distributions considered are for the total population, the sexes, principal races, or for the major residence categories (table A). The estimated L-fold index of inconsistency in reporting age in 5-year groups is 7 percent; it was about the same in 1960. The index for 1970 is roughly the same for men and women (7 vs. 8), as was the case in 1960.

The difference between whites and Negroes in the consistency of reporting age in 1970 is substantial, the estimated index of inconsistency for Negroes (12) being nearly twice as great as that for whites (7). The difference between Negroes and whites was about the same in 1960 (11 vs. 5). Indexes for specific age groups among Negroes sometimes exceed 15 percent, and even 20 percent, in both 1970 and 1960, especially at the older ages. Inconsistency in reporting age for Negroes appears to be lower at ages under 30 than at the older ages, as is the case for the general population.

The consistency of reporting age differs little from one residence category to another. However, there is somewhat less consistent reporting of age, as measured by the L-fold index, for the metropolitan central city population (9 percent) than for the metropolitan population outside central cities (6 percent) and for the nonmetropolitan urban population (6 percent).

The indexes of inconsistency decrease when the data are grouped into broader (10-year) age groups since age misreporting within the broader groups is now eliminated from consideration. The reductions in the L-fold indexes of inconsistency which result from combining the data on age are generally moderate, however, usually about one-quarter. The indexes for broad age groups show a general tendency to increase with increasing age, as do the gross errors for 5-year age groups. A substantial difference between the races remains both in 1970 and in 1960.

The L-fold indexes of inconsistency in reporting age and sex taken jointly (6 percent) and in reporting age and race taken jointly (6 percent), that is, indexes based on a comparison of cases matched at the same time with respect to age and sex or age and race, are of the same order of magnitude as the indexes for reporting broad age groups only (table A). The joint rates are a little higher, however, since misreporting of sex and race (indexes of 2 and 3, respectively) adds a small amount to the response variability of age taken alone (table 19).

It is of particular interest to ascertain how the quality of data on age varies from one type of residence area to another when race is also taken into account. In this case, the estimated inconsistency indexes for residence areas vary in the same way as when age alone is considered for residence areas, but the joint indexes are uniformly a little higher, as expected. The figures indicate somewhat less consistent reporting of age and race in central cities than in other residence areas.

For the age classification response variability, or gross error, as measured by indexes of inconsistency shows a general tendency toward an increase between 1960 and 1970. This is suggested by the data for most of the categories displayed.

Net difference rates, which measure net error, or response bias, are also shown for age data in tables 11 through 18. The net difference rate for an age class represents the difference between the percent of the total population in a given age class in the census and the percent of the total population in the same class in the CPS. Net difference rates for age groups are well below the corresponding indexes of inconsistency because they allow for the offsetting effects of age misreporting into and out of each age group and because the percent of the total population in an age class is a relatively small and stable characteristic. Net difference rates for the age classification, in 5-year age groups and broad categories, do not provide definite evidence of any substantial biases in the age data for men or women, for whites or Negroes, or for the major residence categories.

Estimated net difference rates for 5-year age groups (to 75 years and over) in the total population are all very small; none differs significantly from zero at the 95-percent confidence level, and the confidence intervals do not exceed ± 0.2 percent. Hence, any biases which may exist in the reporting of age of the total population are likely to be quite small. However, there is some indication, on the basis of data for broad age groups, of a pattern of understatement of age for men in the younger age classes in favor of the older ages. As seen in table 14, the estimated net difference rates for age groups below 45 years old have negative values, without regard to the 95-percent confidence interval, whereas the opposite is generally true for the older groups.

For whites and Negroes considered separately, none of the estimated net difference rates for 5-year age groups or 10-year age groups is significantly different from zero. Also, the net difference rates for the age classification in 5-year groups for the major residence categories indicate little or no bias, and the variation between residence categories is small.

When age in broad groups and race, and age in broad groups and sex, are considered jointly, net difference rates by age remain low. These low rates are associated with the fact that net errors in reporting race and sex are very small. Although the classification by race and sex is estimated to be highly consistent between the CPS and census, the net difference rates for the race categories indicate a slightly smaller proportion of persons classified as white in the census and a slightly larger proportion classified as belonging to races other than white or Negro (table 19).

2. Relationship to Household Head

In order to evaluate the accuracy of 1970 census data on relationship to household head, comparisons have been made between the CPS and census classifications of identical persons into six basic relationship categories—family head, primary individual, wife, child, other relative, and nonrelative (table 20). The L-fold indexes of inconsistency on relationship for both men and women (4 and 5, respectively) illustrate that the CPS and census classifications are generally uniform (table 21). Relatively low levels of inconsistency are also observed for Negro men and women and for persons in nearly every age group. However, among men aged 14 to 19 years old and among men and women under 14 years old, there is evidence of slightly greater inconsistency.

Table A. L-Fold Index of Inconsistency for Age by Sex, Race, and Residence: 1970 and 1960

(Because of rounding, some L-fold indexes lie outside their 95-percent confidence intervals)

Age classification by sex, race, and residence	1970		1960	
	L-fold index of inconsis- tency	95-percent confidence interval	L-fold index of inconsis- tency	95-percent confidence interval
5-YEAR AGE GROUPS				
Total.....	7	6.8 to 7.5	6	5.3 to 5.9
Sex:				
Male.....	7	6.1 to 7.1	5	5.1 to 5.9
Female.....	8	7.0 to 8.1	6	5.3 to 6.1
Race:				
White.....	7	6.2 to 7.0	5	4.7 to 5.3
Negro ¹	12	10.9 to 14.1	11	9.9 to 12.3
Residence:				
Metropolitan ²	7	6.8 to 7.7	6	6.0 to 6.8
Inside central cities.....	9	7.9 to 9.5	(NA)	(NA)
Outside central cities.....	6	5.6 to 6.8	(NA)	(NA)
Nonmetropolitan ³	7	6.9 to 7.6	4	4.0 to 4.7
Urban.....	6	5.2 to 7.1	(NA)	(NA)
Rural.....	7	6.6 to 8.4	(NA)	(NA)
BROAD AGE GROUPS				
Total.....	5	5.1 to 5.8	4	3.7 to 4.1
Sex:				
Male.....	5	4.5 to 5.5	4	3.7 to 4.4
Female.....	6	5.3 to 6.3	4	3.4 to 4.0
Race:				
White.....	5	4.7 to 5.4	3	3.2 to 3.6
Negro ¹	9	7.9 to 11.0	8	7.2 to 9.5
Sex by race:				
White male.....	4	4.0 to 5.0	(NA)	(NA)
White female.....	5	4.9 to 5.9	(NA)	(NA)
Negro male.....	9	7.4 to 12.1	(NA)	(NA)
Negro female.....	9	7.0 to 11.1	(NA)	(NA)
Residence:				
Metropolitan ²	5	5.1 to 5.9	4	4.1 to 4.8
Inside central cities.....	7	6.2 to 7.6	(NA)	(NA)
Outside central cities.....	4	3.9 to 4.9	(NA)	(NA)
Nonmetropolitan ³	5	4.8 to 6.0	3	2.8 to 3.5
Urban.....	5	3.8 to 5.6	(NA)	(NA)
Rural.....	6	5.1 to 6.7	(NA)	(NA)
JOINT MEASURES				
Broad age groups and sex.....	6	5.7 to 6.4	5	4.5 to 5.0
Broad age groups and race:				
Total.....	6	5.5 to 6.2	4	3.9 to 4.4
Metropolitan, central cities.....	8	6.8 to 8.3	(NA)	(NA)
Metropolitan, other.....	5	4.2 to 5.2	(NA)	(NA)
Nonmetropolitan, urban.....	5	4.0 to 5.8	(NA)	(NA)
Nonmetropolitan, rural.....	6	5.5 to 6.9	(NA)	(NA)

NA Not available.

¹Refers to "Negro and other races" in 1960. ²Refers to "Urban, total" in 1960. ³Refers to "Rural, total" in 1960.

Source: Table 11 through 18 and 1960 CPS-Census Match study [8].

Among the specific relationship categories, men were classified as family heads more consistently than was true for women, whereas the designation as a "primary individual" was more consistent for women (table B). For both sexes, the categories "other relative" and "nonrelative," with indexes which approach or exceed 20, were reported with a moderate level of inconsistency. Basically similar levels of inconsistency were observed in the 1960 CPS-Census Match study. The "other relative" category, which comprises all relatives outside the nuclear family (head, wife, or child), is one that would benefit from the knowledge of a skilled CPS interviewer. Persons could easily misclassify themselves either into or out of this category under the census self-enumeration procedure or be misclassified by a less experienced enumerator in the census. However, the classification as a "nonrelative" could legitimately differ from one enumeration to another. In households not occupied by members of the same family, the person being interviewed or completing the questionnaire would be classified as a "primary individual," and all other persons in the household would be "nonrelatives." Obviously, the household respondent could have been different between the CPS and census, and the classification of the household members could therefore vary.

Text table C below provides further insight into the differences between CPS and census data on relationship to the household head. This table presents the percent distribution of CPS relationship categories by their classification in the census. For persons classified as household heads (family heads or primary individuals) in the CPS, 99 percent of the men and 95 percent of the women were also classified as heads of households in the census. However, among men who were identified as primary individuals in the CPS, nearly 10 percent appeared as either family heads or nonrelatives in the census. Approximately 7 percent of the CPS women family heads were classified as "other relatives" in the census. As mentioned above, the highest

levels of inconsistency between the CPS and census are observed for the categories "other relative" or "nonrelative." A sizable proportion of other relatives according to the CPS were classified in the census as children or family heads, whereas nonrelatives in the CPS were often classified as primary individuals in the census. However, since the variations in classification are largely offsetting, the CPS and census figures result in approximately the same distribution of the population according to the relationship categories.

3. Marital Status

As estimated by the L-fold index of inconsistency, the CPS and census determination of marital status resulted in very few discrepancies overall (table 23). For both men and women in nearly every age group the indexes are under 20 and in many cases they do not exceed 10. Whereas the reporting of the two largest categories, "married, excluding separated" and "single," was highly uniform, the categories "separated" and "divorced" were moderately inconsistent. The same relationships were observed in 1960. (See Table D.)

As shown in table E, approximately 16 percent of both men and women classified as divorced in the CPS were tabulated in a different marital status category in the census. About 30 to 40 percent of the separated men and women, according to the CPS, were classified differently in the census. However, the data reveal no clear pattern of misclassification among specific categories. The differences between the two data sources were largely offsetting over the entire distribution, and the net difference rates with their associated 95-percent confidence intervals reveal no substantial biases in the census marital status classification (table 23).

Table B. Index of Inconsistency for Relationship to Household Head by Sex: 1970 and 1960

Relationship to household head and sex	1970		1960	
	Index of inconsistency	95-percent confidence interval	Index of inconsistency	95-percent confidence interval
Male, all ages.....	4	3.6 to 4.6	4	3.7 to 4.5
Family head.....	2	1.7 to 2.5	3	2.2 to 3.0
Primary individual.....	11	9.1 to 14.4	7	4.9 to 8.7
Child.....	2	1.9 to 2.8	3	2.3 to 3.0
Other relative.....	20	16.5 to 24.1	17	14.3 to 19.0
Nonrelative.....	29	22.4 to 37.7	19	14.4 to 24.6
Female, all ages.....	5	4.1 to 5.1	5	4.3 to 5.2
Family head.....	13	11.3 to 15.8	16	14.5 to 18.6
Primary individual.....	4	3.4 to 5.5	5	3.7 to 5.8
Wife.....	2	1.8 to 2.6	2	2.0 to 2.7
Child.....	2	1.8 to 2.7	2	1.9 to 2.5
Other relative.....	18	15.4 to 21.2	14	12.3 to 16.0
Nonrelative.....	27	21.3 to 34.9	23	17.8 to 29.3

Source: Table 21 and 1960 CPS-Census Match study [8].

Table C. Percent Distribution—Relationship to Household Head in March 1970 CPS by Relationship to Household Head in 1970 Census

CPS classification	Census classification								
	Total		Head of household			Wife	Child	Other relative	Non-relative
			Total	Family head	Primary indiv- idual				
	Number	Percent							
PERSONS IN HOUSEHOLDS									
Male									
Head.....	5,442	100.0	99.0	93.1	5.9	-	0.3	0.3	0.4
Primary family head....	5,104	100.0	99.4	98.9	0.4	-	0.3	0.2	0.1
Primary individual.....	338	100.0	94.1	5.0	89.1	-	-	1.2	4.7
Wife.....	-	-	-	-	-	-	-	-	-
Child.....	4,486	100.0	0.5	0.5	-	-	98.6	0.7	0.1
Other relative.....	291	100.0	5.2	4.1	1.0	-	12.4	80.1	2.4
Nonrelative.....	100	100.0	15.0	2.0	13.0	-	7.0	5.0	73.0
Female									
Head.....	1,422	100.0	94.5	36.3	58.2	1.3	0.3	3.1	0.8
Primary family head....	580	100.0	89.3	86.2	3.1	2.2	0.7	7.4	0.3
Primary individual.....	842	100.0	98.1	1.9	96.2	0.7	-	0.1	1.1
Wife.....	4,989	100.0	0.5	0.3	0.2	98.6	0.2	0.3	0.5
Child.....	4,225	100.0	0.3	0.3	-	0.3	98.4	0.8	0.2
Other relative.....	441	100.0	5.0	4.5	0.5	2.3	6.8	85.3	0.7
Nonrelative.....	106	100.0	7.5	0.9	6.6	3.8	2.8	2.8	83.0

- Denotes zero or less than 0.05 percent.

Source: Table 20.

Table D. Index of Inconsistency for Marital Status by Sex: 1970 and 1960

Marital status and sex	1970		1960	
	Index of inconsistency	95-percent confidence interval	Index of inconsistency	95-percent confidence interval
Male, 14 years old and over....	5	4.0 to 5.5	6	5.2 to 6.6
Married, excluding separated.	2	1.9 to 3.0	2	1.9 to 2.8
Separated.....	43	33.8 to 56.0	53	44.1 to 63.1
Widowed.....	14	10.9 to 19.2	13	10.7 to 16.8
Divorced.....	24	18.8 to 31.1	37	30.4 to 44.5
Single.....	2	1.6 to 2.7	3	2.5 to 3.6
Female, 14 years old and over..	5	4.3 to 5.6	5	4.9 to 6.1
Married, excluding separated.	2	1.7 to 2.6	3	2.1 to 3.0
Separated.....	29	23.7 to 36.3	29	24.0 to 34.6
Widowed.....	6	5.0 to 7.4	7	6.0 to 8.2
Divorced.....	19	16.0 to 23.3	23	19.0 to 27.0
Single.....	2	1.9 to 3.1	3	2.2 to 3.4

Source: Table 23 and 1960 CPS-Census Match study [8].

Table E. Percent Distribution—Marital Status in March 1970 CPS by Marital Status in 1970 Census

CPS classification	Census classification							
	Total, 14 years old and over		Married			Widowed	Divorced	Single
	Number	Percent	Total	Excluding separated	Sepa- rated			
PERSONS, 14 YEARS OLD AND OVER								
Male								
Married.....	5,144	100.0	99.2	98.1	1.1	0.3	0.3	0.2
Excluding separated.....	5,074	100.0	99.6	99.3	0.3	0.1	0.1	0.2
Separated.....	70	100.0	72.9	14.3	58.6	10.0	12.9	4.3
Widowed.....	177	100.0	6.2	3.4	2.8	84.2	9.0	0.6
Divorced.....	120	100.0	9.2	4.2	5.0	3.3	84.2	3.3
Single.....	1,769	100.0	1.1	0.8	0.3	0.2	0.8	97.9
Female								
Married.....	5,272	100.0	98.9	96.5	2.4	0.3	0.5	0.3
Excluding separated.....	5,121	100.0	99.6	99.2	0.3	0.1	0.2	0.2
Separated.....	151	100.0	78.1	6.0	72.2	7.3	9.9	4.6
Widowed.....	971	100.0	2.1	1.1	0.9	93.9	3.3	0.7
Divorced.....	291	100.0	8.2	3.1	5.2	6.2	84.2	1.4
Single.....	1,719	100.0	1.0	0.8	0.3	0.6	0.5	97.8

Source: Table 22.

4. Years of School Completed

Classification of the population by educational attainment, or years of school completed, was moderately inconsistent between the CPS and census. The estimated L-fold indexes of inconsistency for both men and women 14 years old and over are in the high thirties (table 25). Although the inconsistency is moderately high for both whites and Negroes, the estimated L-fold index is slightly higher for Negroes (49). Among the four age groups considered—14 to 17 years, 18 to 21 years, 22 to 24 years, and 25 years and over—the youngest group was classified with relatively less inconsistency (L-fold index of 23). This is probably because most persons in this age group were still attending school and the attainment level was, therefore, more readily recalled by respondents in the CPS and census.

Among the attainment categories, the levels of inconsistency vary from a low of about 20 percent for the category "college: 5 years or more" to over 50 percent for "elementary: 5 years." As a general rule, classification at the terminal levels of education, that is, 4 years of high school, 4 years of college, and 5 or more years of college, was more uniform than was true for the other attainment levels. Specifically, the indexes for these levels range between 20 and 30, whereas the indexes associated with the categories 1 to 3 years of high school or 1 to 3 years of college approach 50.

In spite of the moderate inconsistency in reporting educational attainment, the gross differences between the CPS and census

classifications are largely offsetting and, hence, little bias is indicated by the net difference rates (table F). There is some evidence that the census may have slightly understated the terminal education categories relative to CPS, but this is not necessarily an indication of error in the census education statistics. It has been speculated that a respondent in a personal interview situation, such as in the CPS, may tend to give the more common or easier answer. For instance, a person who has attended but not completed the fourth year of high school may be reported as a "high school graduate" rather than as having completed only 3 years of high school. Although there is no systematic evidence, it is felt that such erroneous reporting would occur more often during an interview than during self-enumeration, in which the respondent is visually confronted with the specific attainment levels.

Table G below provides further information on the differences in educational attainment as measured by the CPS and the census. From 20 to 40 percent of persons 25 years old and over with no education beyond elementary school, according to CPS, reported a higher educational attainment level in the census. On the other hand, persons classified at either the high school or college level in CPS were more likely to report fewer years of school completed in the census. In most cases where discrepancy occurred, the differences in classification between the CPS and census were only 1 year, or category, apart. Approximately 60 percent of the cases with a discrepancy were classified in the census to an attainment level either one higher or one lower than the CPS classification; approximately 40 percent differed by two or more categories.

Table F. Indexes—Years of School Completed

Years of school completed	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
PERSONS, 14 YEARS OLD AND OVER					
L-fold index.....	38	36.8 to 38.6	(X)	(X)	(X)
Elementary: 0 to 4 years.....	34	30.8 to 37.8	3.6	*0.2	0.0 to 0.5
5 years.....	67	59.3 to 75.3	1.4	*0.1	-0.1 to 0.3
6 or 7 years.....	46	43.1 to 49.0	6.9	0.6	0.2 to 1.0
8 years.....	38	36.1 to 40.3	13.3	*-0.4	-0.8 to 0.1
High school: 1 year.....	47	43.8 to 49.8	7.1	*0.4	0.0 to 0.8
2 years.....	46	42.9 to 48.4	8.4	0.6	0.1 to 1.0
3 years.....	48	44.8 to 51.0	6.4	1.1	0.7 to 1.5
4 years.....	26	25.0 to 27.3	32.8	-2.2	-2.8 to -1.7
College: 1 year.....	50	45.8 to 53.7	4.2	*0.3	-0.1 to 0.6
2 years.....	41	37.7 to 44.7	4.8	-0.4	-0.7 to -0.1
3 years.....	50	44.1 to 55.9	1.7	0.3	0.1 to 0.5
4 years.....	27	24.2 to 29.4	5.8	-0.8	-1.0 to -0.5
5 years or more..	21	18.7 to 24.3	3.5	0.3	0.1 to 0.5

*Not significantly different from zero at 95-percent confidence level.

X Not applicable.

Source: Table 25.

Table G. Years of School Completed in March 1970 CPS by Years of School Completed in 1970 Census

CPS classification	Total (CPS)		Census classification				
			Two categories or more below CPS classification	One category below CPS classification	Same category as CPS classification	One category above CPS classification	Two categories or more above CPS classification
	Number	Percent					
Persons 25 years old and over.....	11,780	100.0	8.5	11.1	65.2	9.0	6.2
Elementary: 0 to 4 years..	539	100.0	(X)	(X)	69.9	10.0	20.0
5 years.....	198	100.0	(X)	24.2	34.3	24.7	16.7
6 or 7 years..	827	100.0	7.5	6.8	54.8	20.9	10.0
8 years.....	1,543	100.0	2.9	15.6	62.5	8.8	10.2
High school: 1 year.....	607	100.0	8.1	21.6	46.0	13.8	10.5
2 years.....	810	100.0	11.4	15.2	48.6	14.3	10.5
3 years.....	557	100.0	12.6	24.1	43.6	17.2	2.5
4 years.....	4,134	100.0	9.0	5.6	78.5	3.3	3.6
College: 1 year.....	441	100.0	5.0	27.9	51.2	13.8	2.0
2 years.....	602	100.0	17.9	14.6	57.6	6.3	3.5
3 years.....	198	100.0	18.2	17.7	50.0	11.1	3.0
4 years.....	802	100.0	13.8	5.4	69.0	11.8	(X)
5 years or more	522	100.0	6.7	10.5	82.8	(X)	(X)

X Not applicable.

Source: Table 24.

5. Veteran Status

Tables 26 through 28 of this report present data on veteran status from the 1970 census (15-percent sample) distributed by the corresponding veteran status classifications developed from the March 1970 CPS. Comparative distributions of veteran status and period of service by age and by race are shown for men 16 years old and over. Another set of tables (29 through 31) summarizes the magnitude and direction of the differences between the two data sources.

As table H below indicates, there were slight differences between the census and CPS in the classification of men by veteran status and period of service. The census tended to overstate slightly the number of veterans serving in the Vietnam and Korean conflicts, relative to CPS, and to understate those with "other service" and men who were nonveterans. The relative understatement in the "other service" category may have partly resulted from slight differences in the definition of service in the Armed Forces between the census and CPS. The instructions to the CPS enumerator state, "Include as active duty the 4- to 6-month period young men serve in connection with provisions of the Reserve Forces Act of 1955." The 1970 census instructions state, "Mark **No** if he was in the National Guard or Reserves, but was **not** called to active duty."

Overall, the classification of veteran status and period of service in the census was generally consistent with the CPS (i.e., the L-fold index of inconsistency is 15). The period of service that was the least inconsistent between the two samples, as defined by the index of inconsistency, was World War II. "Other service" was the most inconsistently reported.

6. Employment Status

Distributions of 1970 census employment status by the corresponding March 1970 CPS classification for identical persons are presented in table 32. Indexes which summarize the differences between the two data sources are presented in table 33. These indexes cannot, however, be strictly interpreted as measures of the gross and net differences in employment status classification between the CPS and census. The assignment of employment status in the CPS was derived from interviews held during the third full week in March 1970, whereas census

enumeration extended over several weeks beginning in the last week of March 1970. Since many persons could have experienced a change in employment status between the two enumerations, some portion of the difference in classification between CPS and census is valid. The indexes reflect a combination of response errors and actual changes, and the index of inconsistency is, therefore, overstated to the extent that actual changes occurred. The effect of these changes in employment status on the net difference rate cannot be determined, and hence this measure should be interpreted with caution.

Viewed as an upper limit of variability, the L-fold index of inconsistency (18) indicates that employment status as measured in the census was reasonably consistent with the CPS classification. The level of agreement did not differ appreciably between men and women overall; but when age categories are considered separately, there are some noticeable differences. For young persons (age groups 14 and 15, 16 and 17, and 18 and 19) the indexes range from 30 to nearly 60 for both men and women. Moreover, the value of the index tends to decrease as age increases (table 33). For men 20 years of age and over, the estimated indexes are between 20 and 33; for women 20 to 65 years of age, the indexes are generally near 20. Among the four employment status categories, classification of persons as "employed in nonagricultural industries" or as "not in labor force" was fairly consistent between the two sources. Specifically, the indexes are under 20 for both men and women. On the other hand, the indexes associated with the category "employed in agriculture" are somewhat higher (over 30), and for the category "unemployed" there is a high level of disagreement indicated. Although the index of inconsistency for "unemployed" is near or above 50 for both men and women and for each age group, it must be remembered that unemployment is subject to change over a short period of time and that many of the differences observed may reflect real changes.

Since similar constraints apply to the employment status data from the 1960 CPS-Census Match study, comparisons can be made between the levels of inconsistency as measured in 1960 and 1970. The indexes, which are summarized in table I below, indicate that there was no appreciable difference in the uniformity of classification ascertained in the two studies. Although the figures show a slight increase in gross differences, especially for men, none of these differences is larger than would be expected to result from sampling variability.

Table H. Indexes—Veteran Status and Period of Service

Veteran status and period of service	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
L-fold index.....	15	13.6 to 16.3	(X)	(X)	(X)
Veteran:					
Vietnam conflict.....	22	18.0 to 26.8	5.7	0.8	0.4 to 1.3
Korean conflict.....	20	16.7 to 23.0	8.2	1.0	0.5 to 1.5
World War II.....	11	9.6 to 12.9	20.2	*0.2	-0.3 to 0.8
World War I.....	18	13.4 to 25.0	2.2	*0.3	0.0 to 0.5
Other service.....	32	27.5 to 36.5	7.1	-0.8	-1.3 to -0.2
Nonveteran.....	10	8.3 to 10.8	56.6	-1.6	-2.2 to -0.9

*Not significantly different from zero at the 95-percent confidence level.

Source: Table 29.

Table I. Index of Inconsistency for Employment Status by Sex: 1970 and 1960

Employment status and sex	1970		1960	
	Index of inconsistency	95-percent confidence interval	Index of inconsistency	95-percent confidence interval
BOTH SEXES, 14 YEARS OLD AND OVER				
L-fold index.....	18	17.1 to 19.0	17	15.9 to 17.4
Employed in agriculture.....	30	26.2 to 34.5	26	23.2 to 28.1
Employed in nonagricultural industries.....	15	13.8 to 15.5	13	12.0 to 13.3
Unemployed.....	61	55.7 to 67.1	56	51.9 to 60.8
Not in labor force.....	16	15.1 to 17.0	15	14.3 to 15.8
MALE, 14 YEARS AND OVER				
L-fold index.....	19	17.9 to 20.9	19	17.6 to 20.1
Employed in agriculture.....	26	22.1 to 30.4	21	18.6 to 23.4
Employed in nonagricultural industries.....	15	13.6 to 16.4	13	12.3 to 14.5
Unemployed.....	58	51.1 to 66.1	49	44.2 to 54.7
Not in labor force.....	17	15.4 to 18.6	18	16.9 to 20.0
FEMALE, 14 YEARS AND OVER				
L-fold index.....	20	19.1 to 21.7	20	19.1 to 21.5
Employed in agriculture.....	63	48.1 to 82.8	57	48.0 to 66.9
Employed in nonagricultural industries.....	17	15.6 to 18.3	16	14.5 to 16.7
Unemployed.....	65	56.7 to 74.4	68	60.6 to 77.0
Not in labor force.....	19	17.8 to 20.5	19	17.9 to 20.4

Source: Table 33 and 1960 CPS-Census Match study [8].

7. Work Experience in 1969

The estimated L-fold index of inconsistency for work experience in 1969 reflects a moderate level of disagreement in classification between the March 1970 CPS and the 1970 census (table J). Specifically, for men the L-fold index is 43 and for women it is 37. Assignment of persons to the specific classifications "worked 50 to 52 weeks in 1969" and "did not work in 1969" was moderately consistent between the CPS and census for both men and women (index values of approximately 30 and 20, respectively). However, the remaining weeks worked categories are characterized by a high degree of variability as evidenced by estimated indexes ranging from the low fifties to approximately 80. Basically, these differences in the reliability of the work experience categories mean that the census dichotomy of worked in 1969/did not work in 1969 and the identification of year-round workers (50 to 52 weeks) are reasonably reliable. However, the identification of the specific weeks worked categories for persons other than year-round workers is highly variable. This is borne out further in table K. For instance, of those men classified in the CPS as having worked 40 to 47 weeks in 1969, nearly all were classified in the census as having worked during that year; but only about 39 percent fell into the 40 to 47 weeks category. Also, the data indicate that the census may have failed to pick up persons who

had worked for only a few weeks in 1969. Specifically, for men and women in the CPS category "worked 13 weeks or less," approximately one-fourth were classified in the census as not having worked in 1969.

The net result of differences in classification according to work experience in 1969 can be seen from the net difference rates summarized in table J. For both men and women the proportion of persons working 50 to 52 weeks was understated in the census, relative to CPS, by about 5 to 7 percentage points. Correspondingly, the categories "48 to 49 weeks" and "40 to 47 weeks" were slightly overestimated. Although the census questionnaire did instruct respondents to include weeks of paid vacation etc., among weeks worked, a failure to do so would explain some of the difference in classification among the weeks worked categories. Also, the CPS contains additional probing questions on activities during 1969 which may have enhanced the accuracy of response on the weeks worked item. On the other hand, there may have been some tendency, similar to that described in the section on years of school completed, for respondents in a CPS interview to give the most common response (i.e., worked the full year). For men 16 to 24 years old and 65 years and over and for women in all age categories, the census tended to understate slightly the proportion of persons working in 1969. Thus, the CPS may more consistently identify persons who worked for only short or sporadic periods during the year.

Table J. Indexes—Work Experience in the Previous Year by Sex: 1970 and 1960

Work experience and sex	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
1970					
Male, 16 Years Old and Over					
L-fold index.....	43	41.6 to 45.2	(X)	(X)	(X)
Worked in 1969:					
50 to 52 weeks.....	32	30.2 to 33.9	64.3	-6.0	-7.0 to -5.0
48 to 49 weeks.....	82	74.6 to 90.8	2.6	2.6	1.9 to 3.2
40 to 47 weeks.....	72	66.4 to 79.2	4.5	2.2	1.5 to 2.8
27 to 39 weeks.....	69	62.1 to 75.7	4.3	0.7	0.1 to 1.3
14 to 26 weeks.....	61	55.2 to 68.2	4.8	-0.7	-1.2 to -0.1
13 weeks or less.....	53	47.4 to 58.6	5.3	*0.2	-0.4 to 0.8
Did not work in 1969.....	22	20.0 to 24.6	14.2	1.0	0.5 to 1.6
Female, 16 Years and Over					
L-fold index.....	37	35.9 to 38.8	(X)	(X)	(X)
Worked in 1969:					
50 to 52 weeks.....	31	28.7 to 32.6	27.7	-5.5	-6.3 to -4.7
48 to 49 weeks.....	79	69.7 to 88.5	1.6	1.4	1.0 to 1.9
40 to 47 weeks.....	74	67.3 to 80.7	3.5	1.7	1.2 to 2.3
27 to 39 weeks.....	65	59.7 to 71.2	5.2	*0.2	-0.4 to 0.8
14 to 26 weeks.....	57	52.1 to 62.2	6.2	*-0.2	-0.8 to 0.4
13 weeks or less.....	50	46.2 to 54.5	8.1	*0.1	-0.5 to 0.7
Did not work in 1969.....	19	17.3 to 20.1	47.7	2.2	1.5 to 2.9
1960					
Male, 14 Years and Over					
L-fold index.....	43	41.5 to 44.3	(X)	(X)	(X)
Worked in 1959:					
50 to 52 weeks.....	30	28.4 to 31.3	59.0	-3.4	-4.1 to -2.6
48 to 49 weeks.....	85	78.0 to 91.7	3.2	1.1	0.6 to 1.6
40 to 47 weeks.....	73	68.4 to 78.1	6.1	1.3	0.7 to 1.9
27 to 39 weeks.....	61	56.9 to 66.1	6.1	*0.2	-0.3 to 0.7
14 to 26 weeks.....	61	56.1 to 66.6	5.1	-0.8	-1.2 to -0.3
13 weeks or less.....	59	53.9 to 63.6	5.5	*-0.4	-0.9 to 0.1
Did not work in 1959.....	22	19.9 to 23.4	15.1	2.0	1.5 to 2.4
Female, 14 Years and Over					
L-fold index.....	36	34.8 to 37.3	(X)	(X)	(X)
Worked in 1959:					
50 to 52 weeks.....	28	26.4 to 30.1	21.1	-3.8	-4.3 to -3.2
48 to 49 weeks.....	76	67.8 to 85.7	1.7	*0.2	-0.2 to 0.5
40 to 47 weeks.....	64	58.8 to 69.8	3.6	0.9	0.5 to 1.4
27 to 39 weeks.....	59	53.8 to 63.7	4.5	*0.2	-0.2 to 0.7
14 to 26 weeks.....	57	52.8 to 62.1	5.8	-1.0	-1.5 to -0.5
13 weeks or less.....	51	47.6 to 54.7	8.3	-0.6	-1.1 to -0.1
Did not work in 1959.....	21	19.6 to 21.9	55.1	4.0	3.4 to 4.6

*Not significantly different from zero at 95-percent confidence level.

X Not applicable.

Source: Table 33 and 1960 CPS-Census Match study [8].

Table K. Percent Distribution—Work Experience in 1969 According to March 1970 CPS and 1970 Census by Sex

CPS classification	Total (CPS)		Census classification							
	Number	Percent	Worked in 1969							Did not work in 1969
			Total	50 to 52 weeks	48 to 49 weeks	40 to 47 weeks	27 to 39 weeks	14 to 26 weeks	13 weeks or less	
MALE										
16 years old and over..	6,705	100.0	84.8	58.3	5.2	6.7	5.0	4.2	5.5	15.2
Worked in 1969.....	5,755	100.0	96.2	67.1	5.9	7.6	5.5	4.6	5.3	3.8
50 to 52 weeks.....	4,308	100.0	98.3	83.5	5.3	4.8	2.4	1.3	1.0	1.7
48 to 49 weeks.....	177	100.0	97.2	37.9	30.5	17.5	6.8	3.4	1.1	2.8
40 to 47 weeks.....	303	100.0	99.3	30.7	12.9	38.9	11.2	3.3	2.3	0.7
27 to 39 weeks.....	290	100.0	95.2	17.9	3.1	20.7	37.2	11.0	5.2	4.8
14 to 26 weeks.....	323	100.0	90.4	11.1	2.2	4.3	15.8	38.7	18.3	9.6
13 weeks or less.....	354	100.0	73.4	4.8	0.8	3.1	3.4	10.2	51.1	26.6
Did not work in 1969.....	950	100.0	15.9	4.7	0.7	0.9	1.6	1.5	6.4	84.1
FEMALE										
16 years old and over..	7,800	100.0	50.0	22.2	3.0	5.2	5.4	6.0	8.2	50.0
Worked in 1969.....	4,077	100.0	89.0	40.6	5.6	9.4	9.7	10.7	13.0	11.0
50 to 52 weeks.....	2,157	100.0	93.2	69.3	6.9	7.4	5.2	2.2	2.1	6.8
48 to 49 weeks.....	126	100.0	95.2	31.7	33.3	18.3	6.3	1.6	4.0	4.8
40 to 47 weeks.....	272	100.0	92.6	17.3	9.6	36.8	18.4	7.4	3.3	7.4
27 to 39 weeks.....	406	100.0	89.7	9.4	1.0	18.7	38.9	16.7	4.9	10.3
14 to 26 weeks.....	483	100.0	86.5	3.9	1.0	2.9	11.0	45.8	21.9	13.5
13 weeks or less.....	633	100.0	73.1	2.5	0.6	1.6	2.1	12.0	54.3	26.9
Did not work in 1969.....	3,723	100.0	7.4	2.0	0.2	0.7	0.7	0.9	3.0	92.6

Source: Table 34.

The indexes based on the 1970 CPS-Census Match study differ only slightly from those ascertained in the 1960 matching study. The variability, as defined by the index of inconsistency, does not differ appreciably for any of the work experience categories. Although there are some slight differences in the level of bias, these differences are not appreciable, and the same pattern of bias occurred in 1960 and 1970.

8. Occupation, Industry, and Class of Worker

Distributions of the occupation, industry, and class-of-worker data in the March 1970 CPS and in the 1970 census are presented in tables 36 through 41. For class of worker and the major occupation and industry groupings, the employment status classification in each data source is also shown. However, for the corresponding index tables (tables 42 through 47) and for the discussion of the quality of data for these characteristics, the data are restricted to persons classified as employed in both the CPS and the census.

Of the three job content classifications, the reporting of major industry group and class of worker was relatively consistent between the census and the CPS. Each has an estimated L-fold index under 20. Major occupation, with an L-fold index of about 26, was slightly more inconsistent (table L). There were, however, important differences between the March 1970 CPS and the 1970 census occupation questions, which more than likely affected the inconsistency in classification. The census questionnaire contained a three-part inquiry, encompassing "kind of work," "most important activity," and "job title"; whereas the CPS asked only for "kind of work." In some cases,

the additional information on the census questionnaire may have led to a different classification than that based only on the single item. Also, it should be noted that the industry and occupation items in the March 1970 CPS had originally been coded on the basis of the 1960 census classification scheme. In order to have comparable codes for the CPS and census in this study, the CPS industry and occupation items had to be recoded on the basis of the 1970 census classification system. However, since the 1970 system was unfamiliar to the CPS coders at that time, the codes assigned may have been subject to a larger error than usual.

A comparison of the differences in occupational classification between the census and the CPS presents a mixed picture for the 12 major occupation groups. For three groups—farmers and farm managers, service workers, and private household workers—the estimated indexes of inconsistency are below 20. In seven other groups the indexes range from the low twenties to the low thirties. However, for two occupation groups—managers and administrators, and laborers—the indexes are about 40 and 50, respectively. Not only does the managers group have a moderately high inconsistency index, but also the net difference rate indicates that the census percent in class is about 2.2 to 3.4 percentage points less than the corresponding CPS percent in class. However, there is some evidence that classification into or out of this group is affected by the use of the three-part question (as in the census) or the single "kind of work" question (as in the CPS). Specifically, when the "main activity" question was added to the December 1971 CPS occupation item, the number of persons classified as managers decreased by approximately 40 percent from the previous month. The CPS classifications in this study are based on the single question occupation item, and it may not be appropriate, therefore, to

Table L. Indexes—Major Occupation Group: 1970

Major occupation group	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
TOTAL, EMPLOYED					
L-fold index.....	26	25.3 to 27.5	(X)	(X)	(X)
Professional, technical, and kindred workers.....	20	18.1 to 22.1	15.0	0.7	0.2 to 1.2
Managers and administrators, except farm.....	39	35.5 to 42.1	11.6	-2.8	-3.4 to -2.2
Sales workers.....	30	26.9 to 34.1	5.9	1.1	0.7 to 1.6
Clerical and kindred workers..	23	20.7 to 24.6	18.1	*0.2	-0.4 to 0.8
Craftsmen and kindred workers..	30	27.4 to 32.6	13.4	*0.4	-0.2 to 1.0
Operatives, except transport..	25	22.3 to 27.0	12.7	0.8	0.3 to 1.3
Transport equipment operatives	26	21.8 to 30.3	3.6	0.4	0.1 to 0.7
Laborers, except farm.....	49	44.0 to 54.9	4.7	*-0.5	-0.9 to 0.0
Farmers and farm managers.....	13	9.7 to 17.8	2.3	-0.2	-0.4 to -0.1
Farm laborers and farm foremen	27	20.2 to 36.7	1.0	*0.1	-0.1 to 0.3
Service workers, except private household.....	19	17.0 to 21.6	10.1	*0.0	-0.4 to 0.5
Private household workers.....	15	10.7 to 20.6	1.7	*-0.2	-0.4 to 0.0

*Not significantly different from zero at 95-percent confidence level.

X Not applicable.

Source: Table 45.

view the census count of managers as negatively biased. The tendency of the CPS to classify a larger proportion of persons as managers also seems to have had some effect on the sales worker major group. Among persons classified as sales workers in the census but in a different major group in the CPS, nearly half were managers in the CPS (table 39). Thus, the index of inconsistency for sales workers is also relatively high (30), and the net difference rate indicates a slight overstatement in the census relative to CPS.

For many occupation descriptions, especially in the craftsmen, operatives, and laborers groups, the determination of the major group is quite difficult. For example, the distinction between a warehouseman (a laborer) and a fork-lift operator (an operative) is often subtle, based on the information at hand. As a result, there historically has been a great deal of inconsistency in classification among these "blue collar" occupation groups. Since the laborer group constitutes a much smaller proportion of employed persons than do the craftsmen and operatives, differences in classification among these groups have relatively more effect on the index for laborers. Also, within major occupation groups, the difficulty in assigning an accurate classification based on sometimes insufficient information results in a certain amount of inconsistency. The occupations "truck drivers" and "deliverymen," two categories within the major group "transport equipment operative," illustrate this point. A deliveryman who reports that he drives a truck but fails to mention that he delivers specified products along a designated route would be incorrectly classified as a truck driver instead of a deliveryman. About half or more of the persons classified as deliverymen in either the CPS or the census were classified as truck drivers in the other source. Thus, the

estimated index of inconsistency is 40 for truck drivers and 98 for deliverymen and routemen.

As shown in table 42, the distribution of the class-of-worker categories along agricultural and nonagricultural lines points up several areas of response difference. With an estimated difference of 0.4 percentage points, the census counted more wage and salary workers in agriculture than did the CPS. For CPS, these workers represented 1.2 percent of the employed; for census, they accounted for 1.4 to 1.8 percent, given the 95-percent confidence interval. The estimated index of inconsistency for this group is 33. The moderate level of inconsistency (23) for self-employed persons in nonagricultural industries partly reflects the differences in the classification of managers. Both categories of unpaid family workers have rather high estimates of inconsistency—53 for persons in agriculture and 47 for those in nonagricultural industries.

Overall, less response inconsistency is indicated for major industry groups than is true for major occupation groups. Nine of the twelve industry categories have estimated indexes below 20, with none exceeding 50 (table M). This pattern is followed for both men and women. Although the major industry group "wholesale and retail trade" has a relatively low index of inconsistency (19), a disparity occurs between its two subdivisions "wholesale trade" and "retail trade." Classification into retail trade is estimated to have been fairly uniform between the CPS and census (an index of 18), but wholesale trade has a relatively high index of 44 (table 46). Since wholesale trade is a much smaller category than retail trade, misclassification between these two groups has relatively more effect on the inconsistency for wholesale trade. Also, the net

difference rates indicate a slight overstatement for both groups in the census.

Persons employed in business and repair services accounted for 2.7 percent of the employed in the CPS. The census classified more persons in this group by 0.1 to 0.8 percentage points.

Also, inconsistency for this category was moderately high (34). A major source of confusion is in deciding whether business or repair service is the primary industrial activity or a secondary operation. For example, an automobile dealership which services cars on its premises should be coded to retail trade but is sometimes misclassified as a business and repair service. This

Table M. Indexes—Major Industry Group: 1970 and 1960

Major industry group	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
1970					
L-fold index.....	16	14.8 to 16.6	(X)	(X)	(X)
Agriculture, forestry, and fisheries.....	14	11.1 to 17.4	3.7	*0.1	-0.1 to 0.4
Mining.....	27	18.9 to 38.2	0.7	*0.1	0.0 to 0.3
Construction.....	21	18.3 to 24.6	5.9	*-0.1	-0.4 to 0.3
Manufacturing.....	14	13.2 to 15.9	27.8	-1.4	-1.9 to -0.8
Transportation, communications, and other public utilities....	14	11.4 to 16.0	7.1	*-0.1	-0.4 to 0.3
Wholesale and retail trade.....	19	17.4 to 21.0	18.2	1.2	0.7 to 1.8
Finance, insurance, and real estate.....	11	8.8 to 13.5	5.4	*-0.1	-0.3 to 0.2
Business and repair services...	34	29.3 to 40.6	2.7	0.5	0.1 to 0.8
Personal services.....	15	11.9 to 17.8	4.7	-0.3	-0.6 to -0.1
Entertainment and recreation services.....	38	27.2 to 51.8	0.6	*0.1	-0.1 to 0.2
Professional and related services.....	10	8.8 to 11.5	17.3	*-0.1	-0.5 to 0.2
Public administration.....	15	12.3 to 17.5	5.9	*0.0	-0.3 to 0.3
1960					
L-fold index.....	13	12.7 to 14.2	(X)	(X)	(X)
Agriculture, forestry, and fisheries.....	10	8.2 to 11.5	7.1	*0.1	-0.2 to 0.3
Mining.....	25	19.1 to 33.7	0.9	*0.1	-0.1 to 0.2
Construction.....	18	15.9 to 20.8	6.4	-0.6	-0.8 to -0.3
Manufacturing.....	13	11.5 to 13.6	27.9	*0.4	-0.1 to 0.8
Transportation, communications, and other public utilities....	10	8.8 to 12.1	7.6	*0.1	-0.2 to 0.3
Wholesale and retail trade.....	19	17.2 to 20.2	19.5	*-0.1	-0.6 to 0.3
Finance, insurance, and real estate.....	9	7.0 to 11.0	4.5	*-0.1	-0.3 to 0.1
Business and repair services...	37	32.2 to 42.7	2.6	*0.1	-0.2 to 0.4
Personal services.....	11	9.3 to 13.5	5.3	*-0.2	-0.4 to 0.0
Entertainment and recreation services.....	19	13.0 to 26.8	0.7	*0.1	0.0 to 0.2
Professional and related services.....	7	6.1 to 8.3	12.4	*-0.2	-0.4 to 0.1
Public administration.....	10	8.2 to 12.1	5.0	0.4	0.2 to 0.6

*Not significantly different from zero at 95-percent confidence level.

X Not applicable.

Source: Table 42 and 1960 CPS-Census Match study [8].

problem is exemplified in table 40 where the manufacturing and retail trade industries in CPS and census contain a number of cases classified as business and repair services in the other data source.

Entertainment and recreation services accounted for only about 0.6 percent of employed persons in the CPS. Moderate differences in classification are reflected by an index of inconsistency of 38. One example of the problems in classification for this group is that of performers. A band performing in a restaurant dining room (retail trade) but contracted by a musician's agency (entertainment and recreation service) should be coded to the agency but often is not.

The levels of inconsistency for major industry groups are generally the same in 1970 as they were in 1960, and the patterns of inconsistency among the groups are quite similar (table M). It must be noted that in 1970 values were imputed for blank industry and occupation items, but they were not in 1960. Since any imputed values would be expected to result in inconsistency between the two data sources, the levels of inconsistency in 1960 and 1970 are not strictly comparable. A comparison of the 1970 and 1960 studies for occupation is impossible because of major changes in the classification structure, some of which involved the transfer of occupations from one major group to another.

9. Income in 1969

The census income statistics for matched persons are distributed by the corresponding income classifications developed from the March 1970 CPS in tables 48 through 54. Comparative distributions for total income in 1969 and each of the structural components of census income (wage or salary income, net nonfarm self-employment income, net farm self-employment income, Social Security income, public assistance income, and all other unearned income) are shown for men and women 14 years old and over. In addition, tables 55 through 61 present the indexes of inconsistency and bias derived from these distributions.

Gross differences in the classification of persons by income class in 1969 between the CPS and census resulted in a rather high

level of inconsistency. (See tables 48 through 54 for the income intervals used.) The estimated L-fold index of inconsistency of total income for persons is 45 (50 for men and 43 for women). Among the type of earnings categories, wage or salary income was classified with somewhat less discrepancy, as reflected by indexes in the thirties. However, the classification by nonfarm and farm self-employment income was highly inconsistent. The type of "income other than earnings" which seems most uniform between the CPS and census is Social Security income. The limited range in the amount of income that can be collected under the Social Security system may explain the relatively low levels of inconsistency. The other sources of unearned income, including public assistance and "all other income," are characterized by high levels of inconsistency. Although the census had only one category for "all other income," the CPS had three separate questions designed to obtain this information. Thus, it is felt that the extra questionnaire detail in the CPS may have helped the respondent to recall small amounts of income from relatively unimportant sources.

The net difference rates, summarized in table O, provide estimates of the variation between the two data sources in the net counts of persons having income from the specified sources. A negative value denotes that there were fewer persons reported in the census as having income from the specified source; a positive value indicates a larger number of persons in the census with that particular type of income.

For example, the net difference rates and their associated confidence intervals indicate that fewer men and women reported having wage or salary income, farm self-employment income, and especially all other income in the census than was true in the CPS. On the other hand, a slightly greater number of women reported Social Security income in the census, with most of the difference occurring in the income interval of \$1 to \$999.

Further information on the differences between the CPS and census classifications of persons by income in 1969 can be obtained by a comparison of the median income values derived from the two sources (refer to tables 48 through 54). The census median income for all matched persons 14 years old and over with income (\$4,413) is about 4-percent higher than the

Table N. L-Fold Index of Inconsistency for Persons 14 Years Old and Over by Sex and Type of Income in 1969

Type of income	Male		Female	
	L-fold index of inconsistency	95-percent confidence interval	L-fold index of inconsistency	95-percent confidence interval
Total income.....	50	48.6 to 51.1	43	41.9 to 44.5
Wage or salary income.....	39	38.0 to 40.5	33	31.5 to 34.2
Nonfarm self-employment income	57	52.8 to 61.9	66	57.7 to 75.0
Farm self-employment income...	48	42.5 to 53.4	91	68.4 to 100.0
Social Security income.....	24	21.9 to 26.8	30	27.5 to 32.3
Public assistance income.....	52	44.2 to 61.7	45	39.7 to 51.3
All other income.....	59	57.2 to 61.4	57	54.4 to 59.8

Source: Tables 55 through 61.

CPS median (\$4,254). Although the census classified a smaller number of persons as having income, fewer of the persons with income were in the lowest income interval (\$1 to \$999) and more were classified in the highest interval (\$25,000 or more) than was true for CPS. The reporting of census income relative to the CPS standard was much closer for men than for women. The median income estimated for the census for men (\$6,888) is little different from the estimated CPS median (\$6,857); but for women, the census median is significantly larger than that in the CPS, \$2,425 vs. \$2,242, or a difference of about 8 percent. In the corresponding CPS-Census Match study distribution of 1960, total money income for men and women 14 years old and over in the census and CPS was compared, but in 1960 nonrespondents were not assigned values for missing income entries, as they were in 1970. However, there are strong similarities between the pattern of differences seen in the 1960 and 1970 studies. Median income in 1959 for persons with income completely reported was about 4-percent higher in the census than in the CPS. For men the census median income was approximately 2-percent higher than the CPS; for women, this disparity was about 4 percent.

Since wage or salary income is the major element of total income, representing 79 percent of total income in both the census and CPS in 1969, it is not surprising that differences in wage or salary income illustrated in this study follow the same general pattern as total income. The median wage or salary income in 1969 for men is nearly the same in the census (\$7,314) as it is the CPS (\$7,288). For women, the census wage and salary median income (\$3,070) surpasses the CPS median (\$2,746) by approximately 12 percent. In 1959, the median wage or salary incomes for men and women were about 3- and 6-percent higher, respectively, in the census than in the CPS. Although 2 to 3 percent more females are classified as income recipients in the CPS than in the census according to this study, a significantly greater proportion in the CPS are classified in the \$1 to \$999 category. This occurrence may signify that women were more likely to recall minor amounts of wage or salary income in the CPS personal interview situation than in the mail-out, mail-return system implemented in many areas for the 1970 census.

For both nonfarm self-employment income and farm self-employment income of men, medians based on the census classifications (\$5,340 and \$1,673) are about 14- and 15-percent higher than the corresponding values based on the CPS (\$4,703 and \$1,451). Although the number of women with nonfarm self-employment income is fairly small, there is a significant difference between median nonfarm self-employment income according to the census (\$1,842) and CPS (\$886). The relatively higher nonfarm and farm self-employment income medians in the census may be attributable in large part to the inclination of some respondents in the census to report gross rather than net income from the business or farm operation. Also, again the CPS may have been more successful in identifying small amounts of income than was the census.

In 1969, the level of Social Security income recorded in both the census and CPS for the United States represented about 82 percent of the administrative record benchmark estimate. Similarly, the incidence of Social Security income for men 14 years and over in this study was remarkably close in the CPS and census. About the same number of men were classified as having Social Security income according to both sources. However, median CPS Social Security income for men (\$1,421) exceeds that based on the census classification by about 4 percent. Approximately 7 percent more of the women are classified as having received Social Security income according to the census, but median Social Security income for women is approximately 7-percent lower in the census than in the CPS—a larger discrepancy than for men with Social Security income.

In matching total aggregate public assistance income for 1969 in the census and CPS against independent benchmark controls, the census figure was understated to a greater extent nationally than CPS (about 5 percentage points). For both men and women in this study, however, the CPS public assistance income medians, \$745 and \$911, are not significantly different at the 95-percent confidence level from the census median values of \$698 and \$852, respectively. There is some evidence of a higher proportion of persons classified as having public assistance income of \$1 to \$999 in the census. This may indicate either

Table O. Summary of Net Difference Rates by Type of Income by Sex

Type of income	Male			Female		
	Percent in class (CPS)	Net difference rate	95-percent confidence interval	Percent in class (CPS)	Net difference rate	95-percent confidence interval
With income, total.....	92.9	-1.5	-2.1 to -1.0	64.7	-1.2	-2.0 to -0.5
With wage or salary income.....	74.7	-0.8	-1.5 to -0.1	47.1	-1.3	-2.0 to -0.6
With nonfarm self-employment income.....	8.0	*-0.1	-0.7 to 0.5	2.6	-0.9	-1.2 to -0.5
With farm self-employment income.....	4.9	-0.8	-1.2 to -0.4	0.4	-0.2	-0.4 to -0.1
With Social Security income.....	12.2	*0.0	-0.4 to 0.4	13.3	1.0	0.4 to 1.5
With public assistance income.....	1.9	*0.1	-0.3 to 0.4	3.2	*0.2	-0.1 to 0.6
With all other income.....	41.6	-12.7	-13.8 to -11.5	19.4	-3.3	-4.2 to -2.5

*Not significantly different from zero at the 95-percent confidence level.

Source: Tables 55 through 61.

that self-enumeration in the census was more effective in collecting data on irregular public assistance payments or that CPS enumerators were better trained to obtain public assistance payments that covered the full year 1969.

In 1969 all other sources of unearned income were severely underestimated (about 50 percent) in both the census and the CPS when compared to national benchmark standards, but the census picked up about 3 percent more such aggregate income than the CPS. The match study shows that both men and women reported all other income with much greater frequency in the CPS than in the census, 43 percent for men and 20 percent for women, but the median income for men and women in the census (\$791 and \$783) ranges from about 9 percent (women) to about 12-percent (men) higher. The overwhelming majority of additional persons with all other income reported in the CPS fall into the \$1 to \$999 interval. As mentioned earlier, all other income in the CPS was broken down into three separate questions, and the extra questionnaire detail may have helped the respondent to remember small amounts of income from relatively unimportant sources of unearned income.

10. Poverty Status in 1969

Tables 62 through 65 contain data on the poverty status of matched families and persons from the March 1970 CPS and the 1970 census. The tables display the poverty status classification of persons by family status and of families by size of family, total family income, and difference between total family income and the poverty level. Another set of tables, 66 through 70, provides estimates of the inconsistency and net difference associated with poverty classification between the CPS and census.

The estimated inconsistency rate for the classification of poverty status is moderately high (41). Since poverty classification is determined by a combination of factors such as total income, family size, farm-nonfarm residence, sex of head, and number of related children under 18, gross error in poverty classification results from errors in the reporting of one or more of these characteristics. Based on the data available in tables 62 through 65, the index tables have been designed to indicate the effect of only one of these characteristics on the estimates of error in census poverty classification. This was accomplished by restricting the universe for the calculation of indexes to families or persons who reported a particular poverty-related characteristic consistently in the CPS and census. Since there is then perfect consistency for that characteristic, the new restricted index approximates the accumulation of errors in the reporting of the remaining characteristics. Although response errors in two or more poverty-related characteristics could have an offsetting effect on the poverty status classification, it is assumed that this did not occur to any great extent. When the value of the particular index is similar to that of the original L-fold index on poverty status (41), it indicates that the restricted characteristic was not a major source of error in census poverty classification. When the restricted index is considerably lower than the unrestricted L-fold index, it can be assumed that inconsistent reporting of the specified characteristic was a contributing and possibly a major cause of inconsistency in the poverty classification. The estimated indexes of inconsistency in tables 66 through 70 indicate that, of the characteristics that are used to determine poverty classification, error in the income classification is the primary reason for inconsistency in the poverty status classification.

Table 67 shows the estimated indexes for poverty status restricted to families with the same number of family members according to both CPS and census, so that any inconsistency caused by inaccurate reporting of family size could be negated. In this case the estimated inconsistency rate (41) is not different from the original L-fold index, indicating that variation in reporting family size did not contribute appreciably to inconsistency in the poverty status classification. The same procedure is followed in table 70 for persons with the same family status in CPS and census, and the census poverty classification inconsistency is still moderately high (40).

In table 69, indexes are shown for families who reported total income within the same income interval in both CPS and census. However, the effect of inconsistency in income reporting cannot be entirely negated since inconsistencies which would affect the poverty status classification can occur within the income intervals utilized. For example, the average low-income threshold in 1969 for a nonfarm family of four persons was \$3,743. If such a family reported a 1969 income of \$3,560 in the CPS and \$3,860 in the census (i.e., within the same income interval), it would be classified as poor in CPS and not poor in census. The fact that this type of inconsistency in income reporting and poverty classification actually occurred within such narrow intervals (e.g., \$3,500-\$3,999) is illustrated in table 68. This table shows that the inconsistency rate was high (67) for families which reported incomes within \$250 of the poverty level and which were, therefore, within a range of \$500 between the two surveys.

Nevertheless, the estimated index of inconsistency in poverty classification for families with CPS and census incomes in the same interval is lower (20) than that for all families (table 69). This index indicates that when inconsistency in reporting income is negated, the variability in the poverty status classification decreases.

The estimated net difference rate on poverty status (1.0) indicates that the census classified a slightly larger proportion of families as poor than did the CPS. Table P shows that this level of difference is relatively stable regardless of sex or race of the family head.

Table P. Net Difference Rates for Poverty Status by Sex and Race of Family Head

Sex and race of head	Percent poverty level below (CPS)	Net difference rate	95-percent confidence level
All families.	8.3	1.0	0.3 to 1.7
Male head.....	6.4	0.9	0.2 to 1.5
Female head.....	25.8	*2.0	-1.3 to 5.3
White head.....	7.0	1.0	0.3 to 1.7
Negro head.....	24.3	*0.9	-2.6 to 4.5

*Not significantly different from zero at the 95-percent confidence level.

Source: Table 66.

LIMITATIONS OF THE DATA

1. Since the characteristics examined in this study refer to persons enumerated in the census 20-percent sample, this percentage set the theoretical limit of the number of CPS and census questionnaires that could be matched. However, clerical coding and transcription errors, computer processing problems, population coverage differences, and time considerations prevented the attainment of this maximum level. The table below illustrates the "losses" incurred in the various stages of processing in the CPS-Census Match study.

Clerical match	Number	Percent
Total March 1970 CPS units searched	49,204	100.0
Not matched to a census occupied unit	1,954	4.0
Matched to a census "short form" unit (out of scope)	38,715	78.7
Matched to a census 20-percent sample unit (in scope)	8,535	17.3
Computer match		
Included in computer match processing	8,535	100.0
Not located on CPS file	416	4.9
Located on CPS file	8,119	95.1
Not located on census file	1,255	14.7
Located on census file	6,864	80.4

Although 49,204 CPS households were originally included in the searching activities, only 45,625 households were finally included on the March 1970 CPS file as occupied, interviewed units. Therefore, the theoretical maximum number of cases in the CPS-Census Match study (20 percent of the CPS occupied units) would be 9,125 households. The actual number of units finally located on both the CPS and census files was 6,864 containing 21,502 persons. Since this represents 75.2 percent of the maximum, approximately 24.8 percent of the "in scope" cases were not matched for various reasons. The purpose of this study is to measure the response error associated with characteristics measured in the census. Therefore, if the response error distributions of these unmatched cases were generally different from those for the matched population, the distributions and

the summary measures shown in this report would be biased. It is not known whether any differences do exist and the assumption was made that they do not exist to an appreciable degree.

2. Even though the CPS response is usually assumed to be the standard of accuracy, the CPS is obviously subject to some degree of error. In fact, for some characteristics, the CPS may be as error prone as the census.

3. Whereas the CPS data are obtained through personal interview, the census data are based partially on self-enumeration responses and partially on personal interview. Therefore, differences in the type of enumeration and in the household member(s) being interviewed or completing the questionnaire may have had some effect on the responses given.

4. The final factor to be considered in interpreting differences between the CPS and census data is the variation in the time of enumeration. The census period generally extended from the last week in March and over several weeks during April 1970, or longer in some areas, as compared with the 1-week enumeration period (March 16 to 20) for CPS. Therefore, some of the differences observed are correct in the sense that changes in status do occur over time.

RELATED REPORTS

More detailed information on the methods and concepts of the 1970 census can be found in **1970 Census of Population, Volume I, Characteristics of the Population, Part 1, United States Summary**. Definitions of the CPS concepts are presented in the **Employment and Earnings** and the **Special Labor Force Report** series, published by the Department of Labor, and in the **Current Population Reports** series, published by the Bureau of the Census.

Studies similar in scope to the 1970 CPS-Census Match study were undertaken in both 1960 and 1950. Although the methods of conducting these studies and the manner of presenting the results differed somewhat from those used in this study, the results are generally comparable.

Table 1. Age

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	All persons	Census classification																
		Under 1 year	1 to 4 years	5 to 9 years	10 to 14 years	15 to 19 years	20 to 24 years	25 to 29 years	30 to 34 years	35 to 39 years	40 to 44 years	45 to 49 years	50 to 54 years	55 to 59 years	60 to 64 years	65 to 69 years	70 to 74 years	75 years and over
Total.....	21,502	677	1,118	2,270	2,370	1,911	1,353	1,396	1,229	1,259	1,304	1,325	1,248	1,096	868	735	617	726
Under 1 year.....	686	643	34	4	3	-	1	-	-	-	-	-	1	-	-	-	-	-
1 to 4 years.....	1,128	1,046	45	1	5	1	1	1	-	-	-	2	2	2	-	-	-	-
5 to 9 years.....	2,263	2,174	29	41	7	1	1	4	-	1	-	-	-	1	-	-	-	2
10 to 14 years.....	2,387	2,293	3	2,293	38	3	3	-	2	1	1	1	1	-	-	-	1	1
15 to 19 years.....	1,912	1,831	2	28	1,831	31	31	4	-	1	1	1	1	-	1	-	-	4
20 to 24 years.....	1,340	1,267	1	19	1	1,267	35	35	7	2	2	1	2	-	-	-	-	-
25 to 29 years.....	1,392	1,309	2	1	2	1,309	27	28	28	7	1	4	3	2	3	1	-	-
30 to 34 years.....	1,225	1,119	-	1	-	1,119	6	8	1,119	59	8	1	7	-	1	-	1	3
35 to 39 years.....	1,272	1,160	-	-	3	1,160	2	8	1,160	48	36	7	1	1	2	3	1	-
40 to 44 years.....	1,313	1,202	-	-	-	1,202	2	9	1,202	12	15	54	7	5	3	1	-	-
45 to 49 years.....	1,322	1,245	-	1	1	1,245	3	3	1,223	7	29	1,223	35	10	3	4	1	1
50 to 54 years.....	1,246	1,148	-	3	3	1,148	2	1	1,148	4	12	17	1,148	42	9	2	2	1
55 to 59 years.....	1,094	1,004	-	-	-	1,004	1	1	1,004	-	5	7	30	1,004	29	9	3	3
60 to 64 years.....	872	784	-	-	-	784	3	-	784	2	2	5	5	18	784	40	10	3
65 to 69 years.....	749	659	-	1	1	659	2	1	659	1	5	2	5	8	25	659	29	11
70 to 74 years.....	600	548	-	1	-	548	-	-	548	-	6	-	-	-	6	8	548	34
75 years and over.....	701	659	-	-	1	659	1	2	659	2	-	-	-	5	2	8	21	659

- Represents zero.

Table 2. Age and Sex

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	All persons	Census classification--sex same as in CPS																		Sex different
		Total	Under 1 year	1 to 4 years	5 to 9 years	10 to 14 years	15 to 19 years	20 to 24 years	25 to 29 years	30 to 34 years	35 to 39 years	40 to 44 years	45 to 49 years	50 to 54 years	55 to 59 years	60 to 64 years	65 to 69 years	70 to 74 years	75 years and over	
Male.....	10,319	10,203	326	595	1,150	1,145	937	577	655	579	593	629	629	586	559	371	312	255	305	116
Under 1 year.....	341	330	309	19	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	11
1 to 4 years.....	610	598	12	556	25	1	1	1	-	-	-	-	-	1	-	-	-	-	-	12
5 to 9 years.....	1,178	1,147	2	14	1,106	17	2	2	3	-	1	-	-	-	-	-	-	-	2	31
10 to 14 years.....	1,184	1,154	1	2	1,114	1,114	16	2	-	-	-	-	-	-	-	-	-	1	1	30
15 to 19 years.....	953	942	2	2	904	904	14	3	3	-	1	-	-	1	-	1	-	-	1	11
20 to 24 years.....	580	575	-	1	546	546	9	15	15	3	1	-	-	-	-	-	-	-	-	5
25 to 29 years.....	645	643	-	-	611	611	1	8	611	10	4	1	3	2	1	-	1	-	1	5
30 to 34 years.....	599	597	-	-	540	540	2	3	540	31	4	1	1	5	-	-	-	-	2	2
35 to 39 years.....	584	583	-	-	540	540	1	4	540	19	540	14	1	1	-	1	1	1	-	1
40 to 44 years.....	643	643	-	-	590	590	-	-	590	3	9	28	3	3	3	1	-	-	-	-
45 to 49 years.....	617	616	-	-	575	575	1	1	575	4	4	12	13	13	4	1	2	-	-	1
50 to 54 years.....	596	594	-	-	545	545	1	1	545	2	1	4	13	22	22	4	1	-	1	2
55 to 59 years.....	548	547	-	-	513	513	1	-	513	1	1	1	3	11	513	10	5	1	1	1
60 to 64 years.....	379	377	-	1	344	344	-	-	344	-	-	1	1	9	344	14	2	2	2	2
65 to 69 years.....	314	313	-	-	281	281	-	1	281	-	-	2	2	1	5	8	281	9	4	1
70 to 74 years.....	257	255	-	-	232	232	-	-	232	-	-	-	-	1	2	1	232	18	2	2
75 years and over.....	291	289	-	-	272	272	-	-	272	1	-	-	-	-	2	1	3	10	272	2
Female.....	11,183	11,073	335	498	1,065	1,180	953	762	732	646	662	673	694	660	532	491	420	355	415	110
Under 1 year.....	345	340	320	14	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	5
1 to 4 years.....	518	509	12	471	20	3	3	-	-	-	-	-	-	1	-	-	-	-	-	9
5 to 9 years.....	1,085	1,060	1	11	1,016	24	5	1	1	-	-	-	-	-	1	-	-	-	-	25
10 to 14 years.....	1,203	1,186	1	2	1,137	1,137	21	1	-	2	1	-	-	1	-	-	-	-	-	17
15 to 19 years.....	959	945	-	-	908	908	16	16	-	-	-	1	1	-	-	-	-	-	3	14
20 to 24 years.....	760	750	1	-	709	709	10	18	18	4	1	2	1	2	2	-	-	-	-	10
25 to 29 years.....	747	743	-	-	692	692	1	19	692	18	3	3	1	1	1	3	-	-	3	4
30 to 34 years.....	626	624	-	-	576	576	3	3	576	28	4	-	-	2	2	1	2	1	1	2
35 to 39 years.....	688	685	-	-	616	616	1	1	616	29	616	22	6	1	1	1	2	1	-	3
40 to 44 years.....	670	669	-	-	611	611	-	2	611	9	6	26	4	4	2	2	1	-	-	1
45 to 49 years.....	705	703	-	-	646	646	-	2	646	2	3	17	4	21	6	2	2	1	1	2
50 to 54 years.....	650	649	-	-	602	602	2	2	602	1	2	8	4	602	19	5	1	2	2	5
55 to 59 years.....	546	542	-	-	487	487	-	-	487	1	4	4	4	19	487	18	4	2	2	4
60 to 64 years.....	493	489	-	-	435	435	-	3	435	-	1	1	1	2	9	435	25	8	1	4
65 to 69 years.....	435	434	-	-	376	376	-	2	376	1	1	3	-	4	3	17	376	20	7	1
70 to 74 years.....	343	339	-	-	310	310	-	1	310	3	-	-	-	-	3	5	4	310	16	4
75 years and over.....	410	406	-	-	381	381	-	1	381	1	-	-	-	-	3	2	5	11	381	4

- Represents zero.

Table 3. Age and Race

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	All persons	Census classification--race same as in CPS																		Race different
		Total	Under 1 year	1 to 4 years	5 to 9 years	10 to 14 years	15 to 19 years	20 to 24 years	25 to 29 years	30 to 34 years	35 to 39 years	40 to 44 years	45 to 49 years	50 to 54 years	55 to 59 years	60 to 64 years	65 to 69 years	70 to 74 years	75 years and over	
All races..... White.....	21,502	21,376	673	1,110	2,254	2,361	1,903	1,339	1,389	1,221	1,250	1,301	1,316	1,237	1,092	863	728	616	723	
	19,454	19,363	623	987	1,973	2,087	1,704	1,203	1,299	1,105	1,133	1,184	1,213	1,136	1,012	787	665	580	672	
	635	632	596	28	4	3	-	1	-	-	-	-	-	-	-	-	-	-	-	
	1,001	997	19	929	43	1	3	1	1	-	-	-	-	-	-	-	-	-	-	
	1,973	1,963	3	22	1,891	33	6	1	4	-	1	-	-	-	-	-	-	-	-	
	2,109	2,100	2	27	2,025	33	2	2	-	2	1	1	1	1	-	-	-	1	1	
	1,712	1,705	2	3	4	22	1,640	23	4	-	-	1	1	1	-	1	-	-	3	
	1,206	1,195	1	1	2	1	16	1,133	32	3	2	2	2	1	1	-	-	-	11	
	1,296	1,291	-	-	-	-	1	1,220	16	26	6	1	3	3	3	1	3	-	3	
	1,107	1,102	-	-	-	-	-	6	16	1,013	50	7	1	6	6	1	1	1	5	
Other races.....	1,156	1,149	-	-	-	-	3	1	8	40	1,052	31	46	4	1	2	3	1	1	
	1,193	1,187	-	-	2	1	-	1	8	9	12	1,098	25	32	7	3	3	1	7	
	1,223	1,216	-	-	-	1	-	3	1	2	5	25	1,132	32	7	3	3	1	7	
	1,142	1,136	-	-	-	-	2	2	1	4	2	10	14	1,054	36	6	2	2	6	
	1,007	1,004	-	-	-	-	-	1	1	2	2	3	2	25	939	20	7	2	3	
	796	793	-	1	-	-	-	3	-	1	-	2	5	3	15	718	35	9	2	
	680	677	-	-	-	-	2	1	1	1	-	3	1	5	6	22	29	9	3	
	562	561	-	-	-	1	-	-	-	3	-	-	-	-	-	6	7	517	27	
	656	655	-	-	-	-	-	1	2	2	-	-	-	-	4	2	8	17	619	
	Negro.....	1,861	1,844	50	115	255	261	183	120	79	102	109	105	91	91	75	73	57	33	45
49		49	43	5	2	-	-	-	-	-	-	-	-	1	-	-	-	-	-	
120		118	6	105	2	-	2	-	-	-	-	-	2	1	-	-	-	-	2	
258		258	-	4	244	8	1	-	-	-	-	-	1	-	1	-	-	-	-	
262		261	1	1	8	246	4	1	-	-	-	-	-	-	-	-	-	-	1	
180		180	-	-	-	6	168	5	-	-	1	-	-	-	-	-	-	-	-	
117		117	-	-	-	-	3	107	2	4	-	-	-	1	-	-	-	-	-	
86		84	-	-	-	1	1	4	73	2	2	1	1	-	-	-	-	1	2	
103		101	-	-	-	-	-	-	3	88	7	1	1	-	-	-	-	2	2	
107		106	-	-	-	106	-	1	-	6	94	4	1	1	-	-	-	1	1	
Other races.....	107	107	-	-	1	-	-	1	1	1	3	90	6	2	2	-	-	-	-	
	88	87	-	-	-	-	1	-	-	1	2	4	72	3	3	-	1	1	-	
	94	92	-	-	-	-	1	-	-	-	-	2	3	77	6	3	-	-	2	
	81	81	-	-	-	-	-	1	-	-	-	2	5	5	57	8	2	1	2	
	71	70	-	-	-	-	-	-	-	-	1	1	-	1	3	59	5	-	1	
	63	59	-	-	-	1	-	-	-	-	-	2	1	-	2	3	48	2	4	
	34	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	
	75 years and over.....	41	41	-	-	-	1	-	-	-	-	-	-	-	-	1	-	28	4	
																		35		
	Other races.....	187	169	-	8	26	13	16	16	11	14	8	12	12	10	5	3	6	3	18

- Represents zero.

Table 4. Age by Residence

Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households.

CPS classification	All persons	Census classification																
		Under 1 year	1 to 4 years	5 to 9 years	10 to 14 years	15 to 19 years	20 to 24 years	25 to 29 years	30 to 34 years	35 to 39 years	40 to 44 years	45 to 49 years	50 to 54 years	55 to 59 years	60 to 64 years	65 to 69 years	70 to 74 years	75 years and over
METROPOLITAN																		
Total.....	14,855	474	791	1,557	1,574	1,297	984	1,009	871	897	943	945	879	749	586	463	384	452
Inside central cities.....	6,519	168	315	608	641	551	458	410	338	371	416	413	407	352	334	274	216	247
Under 1 year.....	169	156	9	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-
1 to 4 years.....	315	294	8	1	1	-	-	-	-	-	-	1	-	1	-	-	-	1
5 to 9 years.....	605	584	9	10	1	-	-	-	-	-	-	-	-	-	-	-	-	1
10 to 14 years.....	647	616	12	616	13	-	-	-	2	1	-	-	-	-	-	-	-	1
15 to 19 years.....	554	524	2	11	524	8	-	2	2	-	-	-	-	-	-	-	-	4
20 to 24 years.....	464	-	-	1	5	439	-	11	3	2	-	-	1	-	-	-	-	-
25 to 29 years.....	412	-	-	-	6	382	-	382	9	5	1	2	-	1	-	-	-	3
30 to 34 years.....	327	-	-	-	-	7	-	292	21	21	4	-	-	1	-	-	-	1
35 to 39 years.....	379	-	-	-	-	5	1	16	332	332	15	4	-	2	1	2	1	-
40 to 44 years.....	409	-	-	2	-	2	-	2	7	2	370	18	5	2	1	-	-	-
45 to 49 years.....	414	-	-	-	-	1	-	-	2	3	16	369	12	8	2	-	-	1
50 to 54 years.....	400	-	-	-	-	1	-	1	2	2	2	2	5	13	3	2	2	-
55 to 59 years.....	358	-	-	-	-	1	1	-	-	2	3	6	12	315	14	2	1	2
60 to 64 years.....	336	-	-	-	-	2	-	-	-	-	-	5	3	298	16	3	3	8
65 to 69 years.....	294	-	-	-	-	1	-	-	-	-	5	1	4	4	10	13	12	12
70 to 74 years.....	213	-	-	-	-	-	-	-	3	-	-	-	-	2	2	4	192	192
75 years and over.....	223	-	-	-	-	-	-	-	2	-	-	-	-	2	2	2	4	211
Outside central cities.....	8,336	306	476	949	933	746	526	599	533	526	527	532	472	397	252	189	168	205
Under 1 year.....	309	292	13	3	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1 to 4 years.....	485	450	22	15	1	1	1	3	-	-	-	1	1	-	-	-	-	1
5 to 9 years.....	942	910	9	912	11	11	-	-	-	-	1	1	-	-	-	-	1	-
10 to 14 years.....	942	912	3	912	11	725	14	-	-	-	-	-	1	-	-	-	-	-
15 to 19 years.....	748	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20 to 24 years.....	522	1	1	1	-	8	493	15	1	-	2	-	-	-	-	-	-	-
25 to 29 years.....	593	-	-	-	-	-	11	564	10	2	-	-	2	1	2	-	-	1
30 to 34 years.....	537	-	-	-	-	-	2	9	498	20	1	1	3	1	-	-	1	2
35 to 39 years.....	535	-	-	-	-	-	-	-	20	496	14	2	1	1	-	-	-	-
40 to 44 years.....	533	-	-	-	-	-	1	4	2	6	493	23	1	3	-	-	-	-
45 to 49 years.....	525	-	-	-	1	-	1	1	1	2	7	494	15	1	-	1	1	-
50 to 54 years.....	477	-	-	-	-	-	1	-	1	-	7	10	438	14	4	1	-	1
55 to 59 years.....	394	-	-	-	-	-	-	-	-	-	1	-	9	366	11	4	2	1
60 to 64 years.....	248	-	-	-	-	-	-	-	-	-	-	-	1	7	227	8	5	-
65 to 69 years.....	189	-	-	-	-	-	1	-	-	-	-	-	-	1	6	171	143	10
70 to 74 years.....	156	-	-	-	-	-	-	-	-	-	-	-	-	2	2	3	7	187
75 years and over.....	201	-	-	-	-	-	-	1	-	-	-	-	-	3	-	-	-	-
NONMETROPOLITAN																		
Total.....	6,647	203	327	713	796	614	369	387	358	362	361	380	369	347	282	272	233	274
Urban.....	2,667	84	128	272	311	227	151	149	149	136	153	133	165	155	124	107	107	116
Under 1 year.....	85	81	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1 to 4 years.....	132	119	8	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-
5 to 9 years.....	267	257	4	4	2	-	-	-	-	-	-	-	-	-	-	-	-	-
10 to 14 years.....	310	301	5	301	2	-	-	-	-	-	-	-	-	-	-	-	-	-
15 to 19 years.....	228	-	-	5	217	4	-	-	-	-	-	-	-	-	1	-	-	-
20 to 24 years.....	144	-	-	-	2	141	-	1	-	-	-	-	-	-	-	-	-	-
25 to 29 years.....	153	-	-	-	-	3	-	144	6	-	-	-	-	-	-	-	-	-
30 to 34 years.....	152	-	-	-	-	-	1	2	137	9	3	-	1	-	-	-	-	-
35 to 39 years.....	134	-	-	-	-	-	-	-	5	123	142	3	1	-	1	1	-	-
40 to 44 years.....	151	-	-	1	-	-	-	-	1	3	142	130	3	-	1	-	-	-
45 to 49 years.....	138	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-	-
50 to 54 years.....	165	-	-	-	-	1	1	-	-	-	1	-	155	6	-	1	-	-
55 to 59 years.....	154	-	-	-	-	-	-	1	-	-	-	-	4	147	2	-	1	-
60 to 64 years.....	119	-	1	-	-	-	-	-	-	1	-	-	-	112	5	4	1	-
65 to 69 years.....	109	-	-	-	-	-	1	1	-	-	-	-	-	2	2	98	1	-
70 to 74 years.....	108	-	-	-	1	-	-	-	-	-	-	-	-	-	2	100	4	-
75 years and over.....	118	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	4	112

- Represents zero.

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

- Represents zero.

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households.)

- Represents zero.

Table 8. Broad Age Groups, Race, and Sex

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	All persons	Census classification										Race and/or sex different from CPS			
		Race and sex same as CPS										Total	Race different	Sex different	Race and sex different
		Total	Under 5 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 to 74 years	75 years and over				
White.....	19,454	19,186	1,576	3,984	2,880	2,394	2,312	2,346	1,789	1,238	667	268	86	177	5
Male.....	9,360	9,222	832	2,016	1,351	1,145	1,120	1,111	848	517	282	138	49	87	2
Under 5 years.....	862	838	811	25	2	-	-	-	-	-	-	-	24	5	19
5 to 14 years.....	2,073	2,016	1,976	16	3	-	-	-	-	1	3	57	11	44	2
15 to 24 years.....	1,377	1,358	1,319	17	1	-	-	-	-	-	-	19	8	11	-
25 to 34 years.....	1,158	1,131	1,093	10	35	-	-	-	-	1	2	7	4	3	-
35 to 44 years.....	1,130	1,122	-	-	1,063	26	1,059	24	24	2	-	8	6	1	-
45 to 54 years.....	1,110	1,100	1	1	2	14	13	18	806	18	2	8	5	3	-
55 to 64 years.....	850	842	1	-	-	-	2	11	11	485	19	4	2	2	-
65 to 74 years.....	523	519	-	-	-	2	-	-	1	254	2	2	1	1	-
75 years and over.....	268	266	-	-	-	-	-	-	-	-	-	-	-	-	-
Female.....	10,094	9,964	744	1,968	1,529	1,249	1,192	1,235	941	721	385	130	37	90	3
Under 5 years.....	774	760	731	26	2	1	-	-	-	-	-	14	1	12	1
5 to 14 years.....	2,009	1,969	1,927	13	25	3	4	3	-	-	-	40	6	34	-
15 to 24 years.....	1,541	1,511	1,468	20	1,468	20	29	4	-	-	2	30	9	20	1
25 to 34 years.....	1,234	1,210	1,175	20	1,175	40	31	5	-	-	-	11	5	5	1
35 to 44 years.....	1,219	1,210	-	1	5	3	25	27	5	4	1	9	6	3	-
45 to 54 years.....	1,246	1,237	-	-	5	3	25	27	27	6	1	9	7	2	-
55 to 64 years.....	953	946	-	-	3	1	5	22	877	35	17	7	1	6	-
65 to 74 years.....	719	713	-	1	2	4	2	4	23	660	3	6	2	4	-
75 years and over.....	388	384	-	-	1	2	-	-	5	16	360	4	-	4	-
Negro.....	1,861	1,803	159	495	297	180	213	181	147	87	44	58	16	41	1
Male.....	863	830	77	246	137	73	87	80	71	41	18	33	8	24	1
Under 5 years.....	85	81	76	2	-	-	-	3	-	-	-	-	-	-	-
5 to 14 years.....	263	248	244	3	3	-	-	-	-	-	-	15	1	14	-
15 to 24 years.....	137	133	129	-	129	3	1	-	-	-	-	4	-	4	-
25 to 34 years.....	76	74	66	2	66	4	4	1	-	-	1	2	1	-	1
35 to 44 years.....	87	87	87	-	87	4	77	67	7	-	-	-	-	-	-
45 to 54 years.....	82	79	79	-	1	-	3	4	1	1	1	3	3	-	-
55 to 64 years.....	71	70	-	-	1	-	1	4	59	4	1	1	1	-	-
65 to 74 years.....	42	39	-	-	-	-	1	1	3	32	2	2	2	1	-
75 years and over.....	20	19	-	-	-	-	-	-	1	4	14	1	-	1	-
Female.....	998	973	82	249	160	107	126	101	76	46	26	25	8	17	-
Under 5 years.....	84	81	79	-	1	-	-	1	-	-	-	3	2	1	-
5 to 14 years.....	257	249	242	3	3	-	-	-	1	-	-	8	-	8	-
15 to 24 years.....	160	157	149	5	2	2	-	1	-	-	-	3	-	3	-
25 to 34 years.....	113	111	100	3	100	5	5	-	-	-	2	2	2	2	-
35 to 44 years.....	127	125	121	1	113	5	5	5	1	-	-	2	1	1	-
45 to 54 years.....	100	99	99	1	87	5	5	5	5	-	-	1	-	1	-
55 to 64 years.....	81	79	-	-	67	2	2	7	67	3	-	2	-	2	-
65 to 74 years.....	55	51	-	-	1	-	1	-	2	43	4	4	3	1	-
75 years and over.....	21	21	-	-	1	-	-	-	-	-	20	-	-	-	-
Other races.....	187	167	8	38	31	25	20	22	8	9	6	20	18	2	-
Male.....	96	85	5	18	16	11	9	13	4	5	4	11	9	2	-
Female.....	91	82	3	20	15	14	11	9	4	4	2	9	9	-	-

- Represents zero.

Table 9. Broad Age Groups by Residence

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	All persons	Census classification								
		Under 5 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 to 74 years	75 years and over
METROPOLITAN										
Total.....	14,855	1,265	3,131	2,281	1,880	1,840	1,824	1,335	847	452
Under 5 years.....	1,278	<u>1,233</u>	37	4	-	-	4	-	-	-
5 to 14 years.....	3,136	27	<u>3,070</u>	26	5	2	1	1	1	3
15 to 24 years.....	2,288	5	20	<u>2,216</u>	53	6	4	-	-	4
25 to 34 years.....	1,869	-	1	22	<u>1,771</u>	54	8	5	1	7
35 to 44 years.....	1,856	-	-	4	57	<u>1,728</u>	54	8	3	-
45 to 54 years.....	1,816	-	3	4	8	39	<u>1,712</u>	45	5	2
55 to 64 years.....	1,336	-	-	3	-	6	36	<u>1,244</u>	41	6
65 to 74 years.....	852	-	-	2	3	5	5	25	<u>780</u>	32
75 years and over.....	424	-	-	-	3	-	-	1	16	<u>398</u>
Inside central cities.....										
Total.....	6,519	483	1,249	1,009	748	787	820	686	490	247
Under 5 years.....	484	<u>469</u>	12	1	-	-	2	-	-	-
5 to 14 years.....	1,252	11	<u>1,221</u>	14	2	1	-	1	-	2
15 to 24 years.....	1,018	3	13	<u>976</u>	16	3	3	-	-	4
25 to 34 years.....	739	-	1	9	690	31	2	2	-	4
35 to 44 years.....	788	-	-	3	<u>30</u>	<u>719</u>	27	4	3	-
45 to 54 years.....	814	-	2	2	5	23	<u>755</u>	26	2	1
55 to 64 years.....	694	-	-	3	-	5	26	<u>633</u>	22	5
65 to 74 years.....	507	-	-	1	3	5	5	16	<u>457</u>	20
75 years and over.....	223	-	-	-	2	-	-	4	6	<u>211</u>
Outside central cities.....										
Total.....	8,336	732	1,882	1,272	1,132	1,053	1,004	649	357	205
Under 5 years.....	794	<u>764</u>	25	3	-	-	2	-	-	-
5 to 14 years.....	1,884	16	<u>1,849</u>	12	3	1	1	-	1	1
15 to 24 years.....	1,270	2	7	<u>1,240</u>	17	3	1	-	-	3
25 to 34 years.....	1,130	-	-	13	<u>1,081</u>	23	6	3	1	3
35 to 44 years.....	1,068	-	-	1	27	<u>1,009</u>	27	4	-	-
45 to 54 years.....	1,002	-	1	2	3	16	957	19	3	1
55 to 64 years.....	642	-	-	-	-	1	10	<u>611</u>	19	1
65 to 74 years.....	345	-	-	1	-	-	-	9	<u>323</u>	12
75 years and over.....	201	-	-	-	1	-	-	3	10	<u>187</u>
NONMETROPOLITAN										
Total.....	6,647	530	1,509	983	745	723	749	629	505	274
Under 5 years.....	536	<u>515</u>	16	3	1	-	1	-	-	-
5 to 14 years.....	1,514	12	<u>1,476</u>	23	1	1	1	-	-	-
15 to 24 years.....	964	2	15	<u>932</u>	13	-	1	1	-	-
25 to 34 years.....	748	-	-	13	<u>705</u>	21	7	1	1	-
35 to 44 years.....	729	-	1	3	20	<u>685</u>	15	3	2	-
45 to 54 years.....	752	-	-	5	1	12	<u>711</u>	19	4	-
55 to 64 years.....	630	1	-	1	1	4	11	<u>591</u>	21	-
65 to 74 years.....	497	-	1	1	2	-	2	14	<u>464</u>	13
75 years and over.....	277	-	-	2	1	-	-	-	13	<u>261</u>
Urban.....										
Total.....	2,667	212	583	378	298	289	298	279	214	116
Under 5 years.....	217	<u>207</u>	8	1	-	-	1	-	-	-
5 to 14 years.....	577	4	<u>567</u>	6	-	-	-	-	-	-
15 to 24 years.....	372	-	6	<u>364</u>	1	-	-	1	-	-
25 to 34 years.....	305	-	-	3	<u>289</u>	12	1	-	-	-
35 to 44 years.....	285	-	1	1	6	<u>271</u>	4	1	1	-
45 to 54 years.....	303	-	-	2	-	5	<u>288</u>	7	1	-
55 to 64 years.....	273	1	-	-	1	1	4	<u>261</u>	5	-
65 to 74 years.....	217	-	1	1	1	-	-	9	<u>201</u>	4
75 years and over.....	118	-	-	-	-	-	-	-	6	<u>112</u>
Rural.....										
Total.....	3,980	318	926	605	447	434	451	350	291	158
Under 5 years.....	519	<u>308</u>	8	2	1	-	-	-	-	-
5 to 14 years.....	937	8	<u>909</u>	17	1	1	1	-	-	-
15 to 24 years.....	592	2	9	<u>568</u>	12	-	1	-	-	-
25 to 34 years.....	443	-	-	10	<u>416</u>	9	6	1	1	-
35 to 44 years.....	444	-	-	2	14	<u>414</u>	11	2	1	-
45 to 54 years.....	449	-	-	3	1	7	<u>423</u>	12	3	-
55 to 64 years.....	357	-	-	1	-	3	7	<u>330</u>	16	-
65 to 74 years.....	280	-	-	-	1	-	2	5	<u>263</u>	9
75 years and over.....	159	-	-	2	1	-	-	-	7	<u>149</u>

- Represents zero.

Table 10. Broad Age Groups and Race by Residence

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	All persons	Census classification																			
		White										Negro									
		Total	Under 5 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 to 74 years	75 years and over	Total	Under 5 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 to 74 years	75 years and over	Other races
WHITE	Metropolitan, total...	13,351	1,134	2,711	2,013	1,704	1,655	1,645	1,210	784	419	22	1	4	5	1	2	7	1	1	54
	Inside central cities....	5,392	397	928	798	624	646	683	596	442	221	17	-	4	4	1	2	4	1	1	40
	Under 5 years.....	400	386	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5 to 14 years.....	946	931	908	10	2	1	-	-	-	2	5	-	4	1	-	-	-	-	-	-
	15 to 24 years.....	821	810	3	9	12	2	2	-	-	3	4	-	-	3	-	-	-	-	-	-
	25 to 34 years.....	620	614	-	5	23	1	2	1	2	2	1	-	-	1	-	-	-	-	-	10
	35 to 44 years.....	652	644	-	5	581	23	1	2	3	2	1	-	-	3	-	2	-	-	-	7
	45 to 54 years.....	688	681	-	1	20	596	19	3	3	1	2	-	-	2	-	4	-	-	-	6
	55 to 64 years.....	606	603	-	-	4	16	638	20	2	1	4	-	-	-	-	2	4	-	-	3
	65 to 74 years.....	457	455	-	2	5	19	555	18	4	1	1	-	-	-	-	1	-	-	-	2
	75 years and over.....	202	201	-	-	3	4	13	414	18	-	-	-	-	-	-	-	-	-	-	1
	Outside central cities...	7,959	737	1,783	1,215	1,080	1,009	962	614	342	198	5	1	-	1	-	-	3	-	-	14
	Under 5 years.....	751	750	722	25	3	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-
	5 to 14 years.....	1,784	1,782	13	1,750	3	1	1	-	-	1	1	-	-	-	-	-	-	-	-	-
	15 to 24 years.....	1,216	1,214	2	7	17	3	1	-	-	1	-	-	-	1	-	-	-	-	-	-
	25 to 34 years.....	1,077	1,074	-	13	1,021	20	5	2	1	2	-	-	-	-	-	-	-	-	-	1
	35 to 44 years.....	1,024	1,021	-	-	25	969	24	3	2	3	1	3	-	-	-	-	3	-	-	3
45 to 54 years.....	971	965	-	1	3	16	921	18	3	3	1	3	-	-	-	-	3	-	-	2	
55 to 64 years.....	609	607	-	-	-	-	10	579	17	1	-	-	-	-	-	-	-	-	-	-	
65 to 74 years.....	330	330	-	1	-	-	9	310	10	-	-	-	-	-	-	-	-	-	-	-	
75 years and over.....	197	197	-	-	1	-	-	3	10	183	-	-	-	-	-	-	-	-	-	-	
NEGRO	Metropolitan, total...	6,103	476	1,349	894	700	662	704	589	461	253	7	-	-	2	-	2	-	1	2	8
	Inside central cities....	2,490	192	541	352	280	271	284	262	196	108	2	-	-	1	-	-	-	-	1	2
	Under 5 years.....	197	189	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5 to 14 years.....	534	534	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	15 to 24 years.....	349	346	4	340	1	-	-	1	-	-	1	-	-	1	-	-	-	-	-	-
	25 to 34 years.....	287	287	-	3	271	12	1	1	1	-	-	-	-	-	-	-	-	-	-	-
	35 to 44 years.....	270	270	-	1	1	6	4	1	1	-	-	-	-	-	-	-	-	-	-	-
	45 to 54 years.....	288	288	-	2	256	3	276	6	1	-	-	-	-	-	-	-	-	-	-	-
	55 to 64 years.....	256	256	1	-	1	-	3	246	5	-	-	-	-	-	-	-	-	-	-	-
	65 to 74 years.....	199	198	-	1	1	-	8	184	3	1	-	-	-	-	-	-	-	-	1	-
	75 years and over.....	110	110	-	-	-	-	-	-	5	105	-	-	-	-	-	-	-	-	-	-
	Rural.....	3,613	284	808	542	420	391	420	327	265	145	5	-	-	1	-	2	-	1	1	6
	Under 5 years.....	288	275	8	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
	5 to 14 years.....	818	816	791	15	1	1	1	-	-	-	-	-	-	1	-	-	-	-	-	2
	15 to 24 years.....	532	530	2	9	9	9	1	-	-	-	1	-	-	1	-	-	-	-	-	1
	25 to 34 years.....	419	418	-	9	392	9	6	1	1	-	-	-	-	-	-	2	-	-	-	1
	35 to 44 years.....	403	401	-	-	14	372	10	2	1	-	-	-	-	-	-	-	-	-	-	-
45 to 54 years.....	418	418	-	3	1	7	397	8	2	-	-	-	-	-	-	-	-	-	-	-	
55 to 64 years.....	332	331	-	-	1	2	3	312	13	-	-	1	-	-	-	-	-	-	-	-	
65 to 74 years.....	256	255	-	-	1	-	4	243	5	1	-	-	-	-	-	-	-	-	-	-	
75 years and over.....	147	147	-	-	1	-	-	-	-	5	140	-	-	-	-	-	-	-	-	-	-
NEGRO	Metropolitan, total...	1,330	12	1	-	1	2	4	1	2	-	1,318	113	359	222	142	156	139	110	50	27
	Inside central cities....	1,014	6	1	-	1	1	1	-	-	-	1,008	77	277	177	101	125	110	80	39	22
	Under 5 years.....	79	-	-	-	-	-	-	-	-	-	-	79	2	1	2	-	-	-	-	-
	5 to 14 years.....	277	1	1	-	-	-	-	-	-	-	276	74	269	3	3	-	-	1	-	-
	15 to 24 years.....	173	-	-	-	-	-	-	-	-	-	173	-	4	164	4	3	7	1	-	-
	25 to 34 years.....	106	1	-	-	1	-	-	-	-	-	105	-	1	90	7	1	1	-	-	2
	35 to 44 years.....	125	-	-	-	-	-	-	-	-	-	125	-	1	1	109	6	1	-	-	-
	45 to 54 years.....	109	1	-	-	1	1	-	-	-	-	108	-	1	2	1	6	93	6	-	-
	55 to 64 years.....	81	1	-	-	-	-	-	-	-	-	80	-	-	1	1	2	1	4	1	2
	65 to 74 years.....	45	2	-	-	-	-	-	-	-	-	43	-	-	1	1	2	1	3	34	17

- Represents zero.

Table 10. Broad Age Groups and Race by Residence—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	All persons	Census classification																					
		White										Negro											
		Total	Under 5 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 to 74 years	75 years and over	Total	Under 5 years	5 to 14 years	15 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 to 74 years	75 years and over	Other races	
NEGRO--Continued																							
Metropolitan-Con.																							
Outside central cities....	316	6	1	-	-	1	3	1	-	-	310	36	82	45	41	31	29	30	11	5	-	-	
Under 5 years.....	39	2	1	-	-	-	1	-	-	-	37	36	82	-	-	-	1	-	-	-	-	-	
5 to 14 years.....	82	-	-	-	-	-	-	-	-	-	82	-	82	-	-	-	-	-	-	-	-	-	
15 to 24 years.....	44	-	-	-	-	-	-	-	-	-	44	-	44	-	40	-	-	-	-	-	-	-	
25 to 34 years.....	45	2	-	-	-	1	1	1	-	-	43	-	-	1	28	2	2	1	-	1	-	-	
35 to 44 years.....	34	1	-	-	-	1	-	-	-	-	33	-	-	1	1	26	1	-	-	-	-	-	
45 to 54 years.....	28	1	-	-	-	-	1	-	-	-	27	-	-	-	-	1	-	-	-	-	-	-	
55 to 64 years.....	30	-	-	-	-	-	-	-	-	-	30	-	-	-	-	1	-	-	1	-	-	-	
65 to 74 years.....	11	-	-	-	-	-	-	-	-	-	11	-	-	-	-	-	-	-	10	1	-	-	
75 years and over.....	3	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	3	-	-	
Nonmetropolitan, total.	531	5	-	-	1	-	1	-	2	1	526	52	157	81	39	58	43	38	40	18	-	-	
Urban.....	171	3	-	-	1	-	1	-	-	1	168	20	41	22	14	18	12	17	17	7	-	-	
Under 5 years.....	20	-	-	-	-	-	-	-	-	-	20	18	39	1	-	-	1	-	-	-	-	-	
5 to 14 years.....	42	-	-	-	-	-	-	-	-	-	42	2	20	1	-	-	-	-	-	-	-	-	
15 to 24 years.....	22	-	-	-	-	-	-	-	-	-	22	-	2	20	-	-	-	-	-	-	-	-	
25 to 34 years.....	15	1	-	1	-	-	-	-	-	-	14	-	-	-	14	-	-	-	-	-	-	-	
35 to 44 years.....	15	-	-	-	-	-	-	-	-	-	15	-	-	-	-	15	-	-	-	-	-	-	
45 to 54 years.....	14	1	-	-	-	-	1	-	-	-	13	-	-	-	-	2	10	1	-	-	-	-	
55 to 64 years.....	17	-	-	-	-	-	-	-	-	-	17	-	-	-	-	1	1	15	-	-	-	-	
65 to 74 years.....	18	1	-	-	-	-	-	-	-	1	17	-	-	-	-	-	-	1	16	-	-	-	
75 years and over.....	8	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	1	7	-	-	
Rural.....	360	2	-	-	-	-	-	-	2	-	358	32	116	59	25	40	31	21	23	11	-	-	
Under 5 years.....	31	-	-	-	-	-	-	-	-	-	31	31	116	2	-	-	-	-	-	-	-	-	
5 to 14 years.....	119	-	-	-	-	-	-	-	-	-	119	1	116	55	3	-	-	-	-	-	-	-	
15 to 24 years.....	58	-	-	-	-	-	-	-	-	-	58	-	55	1	22	-	-	-	-	-	-	-	
25 to 34 years.....	23	-	-	-	-	-	-	-	-	-	23	-	-	-	-	39	1	-	-	-	-	-	
35 to 44 years.....	40	-	-	-	-	-	-	-	-	-	40	-	-	-	-	-	26	4	1	-	-	-	
45 to 54 years.....	31	-	-	-	-	-	-	-	-	-	31	-	-	-	-	1	4	1	-	-	-	-	
55 to 64 years.....	24	-	-	-	-	-	-	-	-	-	24	-	-	-	-	4	16	3	-	-	-	-	
65 to 74 years.....	23	2	-	-	-	-	-	-	2	-	21	-	-	-	-	-	1	17	3	-	-	-	
75 years and over.....	11	-	-	-	-	-	-	-	-	-	11	-	-	1	-	-	-	-	8	-	-	-	
OTHER RACES																							
Total.....	187	18	4	6	4	1	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	169	
Metropolitan, total...	174	17	4	6	4	1	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	157	
Inside central cities.....	113	6	2	1	2	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	107	
Outside central cities....	61	11	2	5	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	
Nonmetropolitan, total.	13	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	12	
Urban.....	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	
Rural.....	7	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	6	
		- Represents zero.																					

- Represents zero.

Table 11. Indexes—Age by Sex

(See text for explanation of indexes)

Age and sex	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Age and sex	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
BOTH SEXES						MALE ¹ —Continued					
L-fold index.....	7	6.8 to 7.5	(X)	(X)	(X)	35 to 39 years.....	9	7.1 to 10.6	5.7	*0.1	-0.1 to 0.3
Under 1 year.....	6	4.7 to 7.3	3.2	*0.0	-0.1 to 0.0	40 to 44 years.....	8	6.3 to 9.5	6.3	*-0.1	-0.3 to 0.1
1 to 4 years.....	7	6.2 to 8.5	5.3	*-0.1	-0.2 to 0.1	45 to 49 years.....	8	6.6 to 10.0	6.0	*0.1	-0.1 to 0.3
5 to 9 years.....	5	3.9 to 5.3	10.5	*0.0	-0.1 to 0.2	50 to 54 years.....	8	6.6 to 10.0	5.8	*-0.1	-0.3 to 0.1
10 to 14 years.....	4	3.5 to 4.7	11.1	*-0.1	-0.2 to 0.0	55 to 59 years.....	8	6.1 to 9.6	5.4	*0.1	-0.1 to 0.3
15 to 19 years.....	5	4.0 to 5.4	8.9	*0.0	-0.1 to 0.1	60 to 64 years.....	8	6.4 to 10.8	3.7	*-0.1	-0.2 to 0.1
20 to 24 years.....	6	5.4 to 7.4	6.2	*0.1	-0.1 to 0.2	65 to 69 years.....	10	8.1 to 13.4	3.1	*0.0	-0.2 to 0.2
25 to 29 years.....	7	5.6 to 7.6	6.5	*0.0	-0.1 to 0.1	70 to 74 years.....	9	6.9 to 12.4	2.5	*0.0	-0.1 to 0.1
30 to 34 years.....	9	8.2 to 10.7	5.7	*0.0	-0.1 to 0.2	75 years and over.....	9	6.5 to 11.5	2.8	*0.2	-0.0 to 0.3
35 to 39 years.....	9	7.7 to 10.2	5.9	*-0.1	-0.2 to 0.1	FEMALE ¹					
40 to 44 years.....	9	7.6 to 9.9	6.1	*0.0	-0.2 to 0.1	L-fold index.....	8	7.0 to 8.1	(X)	(X)	(X)
45 to 49 years.....	8	7.0 to 9.3	6.2	*0.0	-0.1 to 0.2	Under 1 year.....	5	3.8 to 7.5	3.1	*-0.1	-0.2 to 0.1
50 to 54 years.....	8	7.3 to 9.7	5.8	*0.0	-0.1 to 0.1	1 to 4 years.....	7	5.3 to 8.7	4.6	*-0.1	-0.3 to 0.1
55 to 59 years.....	9	7.6 to 10.2	5.1	*0.0	-0.1 to 0.1	5 to 9 years.....	5	3.9 to 6.0	9.6	*0.1	-0.1 to 0.2
60 to 64 years.....	10	8.9 to 12.0	4.1	*0.0	-0.1 to 0.1	10 to 14 years.....	4	3.5 to 5.4	10.7	*-0.1	-0.2 to 0.1
65 to 69 years.....	12	9.9 to 13.5	3.5	*-0.1	-0.2 to 0.1	15 to 19 years.....	5	3.8 to 5.9	8.5	*0.1	-0.1 to 0.2
70 to 74 years.....	10	8.5 to 12.3	2.8	*0.1	0.0 to 0.2	20 to 24 years.....	7	5.4 to 8.2	6.8	*0.1	-0.1 to 0.3
75 years and over.....	8	6.5 to 9.6	3.3	*0.1	0.0 to 0.2	25 to 29 years.....	7	5.4 to 8.2	6.7	*-0.1	-0.3 to 0.1
MALE ¹						30 to 34 years.....	10	8.2 to 11.9	5.6	*0.2	0.0 to 0.4
L-fold index.....	7	6.1 to 7.1	(X)	(X)	(X)	35 to 39 years.....	9	7.6 to 11.0	6.2	*-0.2	-0.4 to 0.0
Under 1 year.....	6	4.3 to 8.3	3.2	*0.0	-0.2 to 0.1	40 to 44 years.....	10	7.9 to 11.4	6.0	*0.0	-0.2 to 0.2
1 to 4 years.....	7	5.8 to 9.0	5.9	*0.0	-0.2 to 0.2	45 to 49 years.....	8	6.6 to 9.8	6.4	*-0.1	-0.3 to 0.1
5 to 9 years.....	4	3.4 to 5.2	11.2	*0.0	-0.2 to 0.2	50 to 54 years.....	9	7.0 to 10.4	5.9	*0.1	-0.1 to 0.3
10 to 14 years.....	3	2.8 to 4.4	11.3	*-0.1	-0.3 to 0.1	55 to 59 years.....	10	8.0 to 12.0	4.9	*-0.1	-0.3 to 0.1
15 to 19 years.....	4	3.3 to 5.3	9.2	*-0.1	-0.2 to 0.1	60 to 64 years.....	12	9.7 to 14.2	4.4	*0.0	-0.2 to 0.2
20 to 24 years.....	6	4.3 to 7.1	5.6	*0.0	-0.1 to 0.2	65 to 69 years.....	12	10.2 to 15.1	3.9	*-0.1	-0.3 to 0.1
25 to 29 years.....	6	5.0 to 7.9	6.3	*0.1	-0.1 to 0.3	70 to 74 years.....	11	8.7 to 13.9	3.1	*0.1	0.0 to 0.3
30 to 34 years.....	9	7.1 to 10.6	5.9	*-0.2	-0.4 to 0.0	75 years and over.....	7	5.8 to 9.7	3.7	*0.1	-0.1 to 0.2

*Not different from zero at the 95-percent confidence level.

X Not applicable.

¹Data restricted to persons with same sex classification in the CPS and in the census.

Source: Tables 1 and 2.

Table 12. Indexes—Age by Race

(Data are restricted to persons with race classification the same in CPS and census. See text for explanation of indexes)

Age	White					Negro				
	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
L-fold index.....	7	6.2 to 7.0	(X)	(X)	(X)	12	10.9 to 14.1	(X)	(X)	(X)
Under 1 year.....	5	4.0 to 6.7	3.3	*-0.1	-0.1 to 0.0	13	7.8 to 23.3	2.7	*0.1	-0.4 to 0.5
1 to 4 years.....	7	5.6 to 8.0	5.2	*-0.1	-0.2 to 0.1	11	7.0 to 15.9	6.4	*-0.2	-0.7 to 0.4
5 to 9 years.....	4	3.7 to 5.1	10.1	*0.1	-0.1 to 0.2	6	3.8 to 8.4	14.0	*-0.2	-0.7 to 0.4
10 to 14 years.....	4	3.1 to 4.4	10.9	*-0.1	-0.2 to 0.1	7	4.7 to 9.6	14.2	*0.0	-0.6 to 0.6
15 to 19 years.....	4	3.5 to 5.0	8.8	*0.0	-0.1 to 0.1	8	5.6 to 12.1	9.8	*0.2	-0.4 to 0.7
20 to 24 years.....	6	4.9 to 7.0	6.2	*0.0	-0.1 to 0.2	10	6.9 to 15.7	6.3	*0.2	-0.4 to 0.7
25 to 29 years.....	6	5.3 to 7.3	6.7	*0.0	-0.1 to 0.2	11	6.8 to 17.6	4.6	*-0.3	-0.7 to 0.2
30 to 34 years.....	9	7.5 to 10.1	5.7	*0.0	-0.1 to 0.2	14	9.6 to 20.6	5.5	*0.1	-0.5 to 0.6
35 to 39 years.....	8	7.1 to 9.6	5.9	*-0.1	-0.2 to 0.1	13	9.1 to 19.6	5.8	*0.2	-0.4 to 0.7
40 to 44 years.....	8	6.8 to 9.1	6.1	*0.0	-0.2 to 0.1	16	11.3 to 22.8	5.8	*-0.1	-0.7 to 0.5
45 to 49 years.....	7	6.2 to 8.5	6.3	*0.0	-0.2 to 0.1	20	14.3 to 28.2	4.7	*0.2	-0.4 to 0.9
50 to 54 years.....	8	6.6 to 9.0	5.9	*0.0	-0.1 to 0.1	17	11.5 to 24.1	5.0	*-0.1	-0.7 to 0.5
55 to 59 years.....	7	6.1 to 8.6	5.2	*0.0	-0.1 to 0.2	28	20.7 to 38.2	4.4	*-0.3	-1.0 to 0.4
60 to 64 years.....	10	8.0 to 11.2	4.1	*0.0	-0.2 to 0.1	18	12.2 to 27.1	3.8	*0.2	-0.4 to 0.7
65 to 69 years.....	11	9.6 to 13.3	3.5	*-0.1	-0.2 to 0.1	18	11.4 to 27.7	3.2	*-0.1	-0.6 to 0.4
70 to 74 years.....	10	8.0 to 11.7	2.9	*0.1	0.0 to 0.2	15	8.3 to 28.8	1.8	*0.0	-0.4 to 0.4
75 years and over.....	7	5.6 to 8.6	3.4	*0.1	0.0 to 0.2	19	11.6 to 31.3	2.2	*0.2	-0.2 to 0.7

*Not different from zero at the 95-percent confidence level.

X Not applicable.

Source: Table 3.

Table 13. Indexes—Age by Residence Classification in Census

(See text for explanation of indexes)

Age	Metropolitan									
	Inside central cities					Outside central cities				
	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
L-fold index	9	7.9 to 9.5	(X)	(X)	(X)	6	5.6 to 6.8	(X)	(X)	(X)
Under 1 year	8	5.1 to 11.3	2.6	*0.0	-0.2 to 0.1	5	3.7 to 7.5	3.7	*0.0	-0.2 to 0.1
1 to 4 years	7	5.2 to 9.5	4.8	*0.0	-0.2 to 0.2	7	5.2 to 8.7	5.8	*0.1	-0.3 to 0.1
5 to 9 years	4	3.0 to 5.5	9.3	*0.1	-0.2 to 0.3	4	3.3 to 5.4	11.3	*0.1	-0.1 to 0.3
10 to 14 years	5	3.7 to 6.3	9.9	*0.1	-0.3 to 0.1	3	2.3 to 4.1	11.3	*0.1	-0.3 to 0.1
15 to 19 years	6	4.3 to 7.3	8.5	*0.1	-0.3 to 0.2	3	2.4 to 4.4	9.0	*0.0	-0.2 to 0.1
20 to 24 years	5	3.8 to 6.9	7.1	*0.1	-0.3 to 0.1	6	4.9 to 8.1	6.3	*0.2	-0.1 to 0.2
25 to 29 years	8	5.8 to 9.8	6.3	*0.0	-0.3 to 0.2	6	4.5 to 7.4	7.1	*0.1	-0.1 to 0.3
30 to 34 years	13	10.3 to 6.0	5.0	*0.2	-0.1 to 0.5	7	5.9 to 9.3	6.4	*0.1	-0.3 to 0.2
35 to 39 years	12	9.8 to 15.1	5.8	*0.1	-0.4 to 0.2	7	5.5 to 8.8	6.4	*0.1	-0.3 to 0.1
40 to 44 years	11	8.9 to 13.7	6.3	*0.1	-0.2 to 0.4	7	5.9 to 9.4	6.4	*0.1	-0.3 to 0.1
45 to 49 years	11	9.3 to 14.2	6.4	*0.0	-0.3 to 0.3	7	5.5 to 8.9	6.3	*0.1	-0.1 to 0.3
50 to 54 years	9	7.2 to 11.6	6.1	*0.1	-0.2 to 0.4	8	6.5 to 10.3	5.7	*0.1	-0.3 to 0.2
55 to 59 years	12	9.5 to 14.9	5.5	*0.1	-0.4 to 0.2	8	6.0 to 10.2	4.7	*0.0	-0.2 to 0.2
60 to 64 years	12	9.2 to 14.7	5.2	*0.0	-0.3 to 0.2	9	7.1 to 12.7	3.0	*0.1	-0.1 to 0.2
65 to 69 years	13	10.5 to 16.8	4.5	*0.3	-0.6 to 0.0	10	7.0 to 13.6	2.3	*0.0	-0.2 to 0.2
70 to 74 years	11	8.1 to 14.6	3.3	*0.1	-0.2 to 0.3	12	8.7 to 16.5	1.9	*0.1	0.0 to 0.3
75 years and over	11	8.0 to 14.1	3.4	0.4	0.2 to 0.6	8	5.7 to 11.5	2.4	*0.1	-0.1 to 0.2
Age	Nonmetropolitan									
	Urban					Rural				
	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
L-fold index	6	5.2 to 7.1	(X)	(X)	(X)	7	6.6 to 8.4	(X)	(X)	(X)
Under 1 year	4	2.0 to 9.0	3.2	*0.0	-0.3 to 0.2	6	3.5 to 10.1	3.1	*0.1	-0.3 to 0.1
1 to 4 years	9	5.8 to 13.6	5.0	*0.2	-0.5 to 0.2	8	5.3 to 11.2	4.9	*0.1	-0.2 to 0.4
5 to 9 years	5	3.5 to 7.7	10.0	*0.2	-0.2 to 0.6	6	4.1 to 7.5	11.3	*0.2	-0.5 to 0.1
10 to 14 years	3	2.2 to 5.5	11.6	*0.0	-0.3 to 0.4	5	3.9 to 7.1	12.3	*0.1	-0.4 to 0.3
15 to 19 years	5	3.3 to 7.8	8.6	*0.0	-0.4 to 0.3	6	4.1 to 7.7	9.6	*0.1	-0.2 to 0.4
20 to 24 years	5	2.7 to 8.1	5.4	*0.3	0.0 to 0.5	10	7.2 to 3.5	5.3	*0.2	-0.1 to 0.5
25 to 29 years	5	2.9 to 8.3	5.7	*0.2	-0.4 to 0.1	8	5.4 to 10.8	5.9	*0.1	-0.2 to 0.4
30 to 34 years	10	6.5 to 13.9	5.7	*0.1	-0.5 to 0.3	9	6.1 to 12.1	5.3	*0.0	-0.3 to 0.3
35 to 39 years	9	6.2 to 14.0	5.0	*0.1	-0.3 to 0.5	8	5.3 to 10.7	5.6	*0.1	-0.2 to 0.3
40 to 44 years	7	4.5 to 10.9	5.7	*0.1	-0.3 to 0.4	8	6.0 to 11.8	5.5	*0.3	-0.6 to 0.0
45 to 49 years	4	2.4 to 7.8	5.2	*0.2	-0.5 to 0.1	7	4.9 to 9.9	6.2	*0.1	-0.2 to 0.3
50 to 54 years	6	4.2 to 10.1	6.2	*0.0	-0.3 to 0.3	9	6.7 to 13.0	5.1	*0.0	-0.3 to 0.3
55 to 59 years	5	3.1 to 8.6	5.8	*0.0	-0.3 to 0.3	8	5.3 to 11.3	4.7	*0.1	-0.2 to 0.4
60 to 64 years	8	5.2 to 12.9	4.5	*0.2	-0.2 to 0.5	11	7.4 to 14.9	4.3	*0.3	-0.6 to 0.0
65 to 69 years	10	6.2 to 15.0	4.1	*0.1	-0.4 to 0.3	12	8.9 to 17.0	3.9	*0.2	-0.1 to 0.5
70 to 74 years	7	4.4 to 12.1	4.1	*0.0	-0.3 to 0.3	10	6.3 to 14.4	3.0	*0.1	-0.1 to 0.3
75 years and over	4	2.4 to 8.3	4.4	*0.1	-0.3 to 0.2	6	4.0 to 9.8	4.0	*0.0	-0.2 to 0.2

*Not different from zero at the 95-percent confidence level.

X Not applicable.

Source: Table 1.

Table 14. Indexes—Broad Age Groups by Sex

(Data are restricted to persons with sex classification the same in CPS and census. See text for explanation of indexes)

Age	Male					Female				
	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
L-fold index	5	4.5 to 5.5	(X)	(X)	(X)	6	5.3 to 6.3	(X)	(X)	(X)
Under 5 years	3	2.6 to 4.4	9.1	*0.1	-0.2 to 0.1	3	2.3 to 4.1	7.7	*0.1	-0.3 to 0.0
5 to 14 years	3	2.1 to 3.1	22.6	*0.1	-0.3 to 0.1	3	2.2 to 3.3	20.3	*0.0	-0.2 to 0.2
15 to 24 years	3	2.7 to 4.1	14.9	*0.0	-0.2 to 0.2	4	3.6 to 5.1	15.3	*0.2	0.0 to 0.4
25 to 34 years	6	5.0 to 7.1	12.2	*0.1	-0.3 to 0.2	6	5.5 to 7.6	12.4	*0.1	-0.1 to 0.3
35 to 44 years	7	5.6 to 7.8	12.0	*0.0	-0.3 to 0.2	8	6.5 to 8.8	12.2	*0.2	-0.4 to 0.1
45 to 54 years	6	5.2 to 7.4	11.9	*0.2	-0.2 to 0.3	7	5.8 to 7.9	12.2	*0.0	-0.2 to 0.3
55 to 64 years	6	6.0 to 7.4	9.1	*0.1	-0.1 to 0.3	8	7.1 to 9.8	9.3	*0.1	-0.3 to 0.2
65 to 74 years	8	6.2 to 9.6	5.6	*0.0	-0.2 to 0.2	9	7.5 to 10.6	7.0	*0.0	-0.2 to 0.2
75 years and over	9	6.5 to 11.5	2.8	*0.2	0.0 to 0.3	7	5.8 to 9.7	3.7	*0.1	-0.1 to 0.2

*Not different from zero at the 95-percent confidence level.

X Not applicable.

Source: Table 6.

Table 15. Indexes—Broad Age Groups by Race

(Data are restricted to persons with race classification the same in CPS and census. See text for explanation of indexes)

Age	White					Negro				
	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
L-fold index.....	5	4.7 to 5.4	(X)	(X)	(X)	9	7.9 to 11.0	(X)	(X)	(X)
Under 5 years.....	3	2.6 to 3.9	8.4	*-0.1	-0.2 to 0.0	5	2.7 to 7.9	9.1	*-0.1	-0.5 to 0.3
5 to 14 years.....	3	2.2 to 3.1	1.0	*0.0	-0.2 to 0.1	3	2.0 to 4.7	28.2	*-0.2	-0.7 to 0.4
15 to 24 years.....	4	3.2 to 4.3	5.0	*0.0	-0.1 to 0.2	7	4.8 to 9.5	16.1	*0.3	-0.3 to 1.0
25 to 34 years.....	6	5.2 to 6.7	12.4	*0.1	-0.1 to 0.2	10	7.3 to 14.5	10.0	*-0.2	-0.9 to 0.4
35 to 44 years.....	7	5.8 to 7.4	12.1	*-0.1	-0.3 to 0.1	12	8.9 to 16.0	11.6	*0.1	-0.7 to 0.8
45 to 54 years.....	6	5.0 to 6.5	12.2	*0.0	-0.2 to 0.1	16	11.9 to 20.7	9.7	*0.2	-0.6 to 0.9
55 to 64 years.....	7	5.7 to 7.5	9.3	*0.0	-0.1 to 0.2	16	12.2 to 22.0	8.2	*-0.2	-0.9 to 0.9
65 to 74 years.....	8	6.7 to 9.0	6.4	*0.0	-0.1 to 0.2	16	11.1 to 23.6	5.0	*-0.1	-0.7 to 0.5
75 years and over.....	7	5.6 to 8.6	3.4	*0.1	-0.1 to 0.2	19	11.6 to 31.3	2.2	*0.2	-0.2 to 0.7

*Not different from zero at the 95-percent confidence level.

X Not applicable.

Source: Table 7.

Table 16. Indexes—Broad Age Groups and Sex, Measured Jointly

(See text for explanation of indexes)

Sex and age	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
L-fold index.....	6	5.7 to 6.4	(X)	(X)	(X)
MALE					
Under 5 years.....	5	4.4 to 6.6	4.4	*-0.1	-0.2 to 0.0
5 to 14 years.....	5	4.0 to 5.3	11.0	*-0.1	-0.3 to 0.0
15 to 24 years.....	4	3.6 to 5.1	7.1	*0.0	-0.1 to 0.1
25 to 34 years.....	6	5.1 to 7.2	5.8	*0.0	-0.1 to 0.1
35 to 44 years.....	6	5.4 to 7.9	5.7	*0.0	-0.1 to 0.1
45 to 54 years.....	6	5.1 to 7.1	5.6	*0.0	-0.1 to 0.1
55 to 64 years.....	6	5.2 to 7.6	4.3	*0.1	-0.1 to 0.2
65 to 74 years.....	8	6.8 to 10.3	2.7	*0.0	-0.1 to 0.1
75 years and over.....	9	7.3 to 12.4	1.4	*0.1	0.0 to 0.2
FEMALE					
Under 5 years.....	5	4.2 to 6.5	4.0	*0.0	-0.1 to 0.1
5 to 14 years.....	5	4.2 to 5.6	10.6	*0.1	-0.1 to 0.2
15 to 24 years.....	5	4.4 to 6.0	8.0	*0.1	-0.1 to 0.2
25 to 34 years.....	6	5.5 to 7.5	6.4	*0.1	-0.1 to 0.2
35 to 44 years.....	7	6.3 to 8.5	6.3	*-0.1	-0.2 to 0.0
45 to 54 years.....	7	5.6 to 7.6	6.3	*0.0	-0.1 to 0.1
55 to 64 years.....	9	7.3 to 10.0	4.8	*-0.1	-0.2 to 0.1
65 to 74 years.....	9	7.6 to 10.8	3.6	*0.0	-0.1 to 0.1
75 years and over.....	8	6.3 to 10.3	1.9	*0.0	0.0 to 0.1

*Not different from zero at the 95-percent confidence level.

X Not applicable.

Source: Table 6.

Table 17. Indexes—Broad Age Groups and Race, Measured Jointly

(See text for explanation of indexes)

Sex and age	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
L-fold index.....	6	5.5 to 6.2	(X)	(X)	(X)
WHITE					
Under 5 years.....	4	2.9 to 4.2	7.6	*-0.1	-0.2 to 0.0
5 to 14 years.....	3	2.6 to 3.4	19.0	*0.0	-0.2 to 0.1
15 to 24 years.....	4	3.5 to 4.7	13.6	*0.0	-0.2 to 0.1
25 to 34 years.....	6	5.4 to 6.9	11.2	*0.0	-0.1 to 0.2
35 to 44 years.....	6	6.0 to 7.7	10.9	*-0.1	-0.3 to 0.0
45 to 54 years.....	7	5.4 to 6.9	11.0	*-0.1	-0.2 to 0.1
55 to 64 years.....	7	5.8 to 7.6	8.4	*0.0	-0.2 to 0.1
65 to 74 years.....	8	7.0 to 9.3	5.8	*0.0	-0.1 to 0.2
75 years and over.....	7	5.7 to 8.7	3.1	*0.1	0.0 to 0.2
NEGRO					
Under 5 years.....	5	3.2 to 8.3	0.8	*0.0	-0.1 to 0.0
5 to 14 years.....	3	1.9 to 4.1	2.4	*0.0	-0.1 to 0.1
15 to 24 years.....	7	5.0 to 9.4	1.4	*0.1	0.0 to 0.1
25 to 34 years.....	11	7.7 to 14.6	0.9	*0.0	-0.1 to 0.0
35 to 44 years.....	12	8.8 to 15.5	1.0	*0.0	-0.1 to 0.1
45 to 54 years.....	17	12.9 to 21.4	0.9	*0.0	0.0 to 0.1
55 to 64 years.....	16	12.3 to 21.7	0.7	*0.0	-0.1 to 0.1
65 to 74 years.....	19	13.3 to 26.0	0.5	*0.0	-0.1 to 0.0
75 years and over.....	20	12.1 to 31.7	0.2	*0.0	0.0 to 0.1
OTHER RACES					
Total.....	19.5	15.5 to 24.2	0.9	0.2	0.1 to 0.3

*Not different from zero at the 95-percent confidence level.

X Not applicable.

Source: Table 7.

**Table 18. Indexes—Broad Age Groups and Race, Measured Jointly,
by Residence Classification in Census**

(See text for explanation of indexes)

Age and race	Metropolitan									
	Inside central cities					Outside central cities				
	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
L-fold index.....	8	6.8 to 8.3	(X)	(X)	(X)	5	4.2 to 5.2	(X)	(X)	(X)
WHITE										
Under 5 years.....	4	2.5 to 5.3	6.1	*0.0	-0.2 to 0.2	3	2.6 to 4.6	9.0	*-0.1	-0.3 to 0.0
5 to 14 years.....	4	2.9 to 4.8	14.5	*-0.3	-0.5 to 0.0	3	2.0 to 3.3	21.4	*0.1	-0.2 to 0.3
15 to 24 years.....	4	3.5 to 5.7	12.6	*-0.3	-0.6 to 0.0	3	2.4 to 4.0	14.6	*0.0	-0.2 to 0.2
25 to 34 years.....	7	5.9 to 9.2	9.5	*0.1	-0.2 to 0.4	5	4.2 to 6.3	12.9	*0.1	-0.2 to 0.3
35 to 44 years.....	9	7.5 to 11.1	10.0	*-0.1	-0.4 to 0.2	5	4.4 to 6.7	12.3	*-0.2	-0.4 to 0.1
45 to 54 years.....	8	6.4 to 9.6	10.6	*-0.1	-0.4 to 0.2	5	4.5 to 6.8	11.7	*0.1	-0.3 to 0.2
55 to 64 years.....	8	6.9 to 10.4	9.3	*-0.2	-0.5 to 0.1	6	4.6 to 7.4	7.3	*0.1	-0.1 to 0.3
65 to 74 years.....	9	6.9 to 11.0	7.0	*-0.2	-0.5 to 0.1	8	6.1 to 10.6	4.0	*0.1	0.0 to 0.3
75 years and over.....	10	7.3 to 13.7	3.1	0.3	0.1 to 0.5	8	5.2 to 10.9	2.4	*0.0	-0.1 to 0.1
NEGRO										
Under 5 years.....	5	2.6 to 10.4	1.2	*0.0	-0.1 to 0.1	5	2.0 to 13.8	0.5	*0.0	-0.1 to 0.0
5 to 14 years.....	4	2.4 to 5.8	4.3	*0.1	-0.1 to 0.2	0	0.0 to 2.5	1.0	*0.0	-0.1 to 0.1
15 to 24 years.....	8	5.1 to 11.2	2.7	*0.1	0.0 to 0.3	2	0.6 to 8.3	0.5	*0.0	0.0 to 0.1
25 to 34 years.....	14	9.4 to 19.9	1.6	*-0.1	-0.2 to 0.1	7	3.2 to 15.5	0.5	*-0.1	-0.1 to 0.0
35 to 44 years.....	14	9.8 to 19.4	1.9	*0.0	-0.2 to 0.2	14	7.2 to 26.8	0.4	*0.0	-0.1 to 0.0
45 to 54 years.....	17	12.2 to 23.4	1.7	*0.1	-0.1 to 0.3	13	6.7 to 26.8	0.3	*0.1	0.0 to 0.1
55 to 64 years.....	17	11.4 to 24.6	1.2	*0.0	-0.2 to 0.2	7	2.6 to 17.5	0.4	*0.0	-0.1 to 0.1
65 to 74 years.....	19	11.7 to 31.5	0.7	*-0.1	-0.2 to 0.0	9	2.4 to 34.0	0.1	*0.0	0.0 to 0.0
75 years and over.....	19	9.6 to 38.2	0.3	*0.1	0.0 to 0.2	(S)	(S)	0.0	(S)	(S)
OTHER RACES										
Total.....	18	13.5 to 24.2	1.7	0.5	0.3 to 0.7	20.2	13.5 to 30.0	0.7	0.0	-0.1 to 0.2
	Nonmetropolitan									
	Urban					Rural				
	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
L-fold index.....	5	4.0 to 5.7	(X)	(X)	(X)	6	5.3 to 6.9	(X)	(X)	(X)
WHITE										
Under 5 years.....	3	1.7 to 5.5	7.4	*-0.2	-0.5 to 0.1	4	2.7 to 6.3	7.2	*-0.1	-0.3 to 0.1
5 to 14 years.....	2	1.6 to 3.8	20.0	*0.3	-0.1 to 0.6	3	2.5 to 4.6	20.6	*-0.3	-0.6 to 0.1
15 to 24 years.....	3	2.2 to 5.3	13.1	*0.1	-0.2 to 0.5	6	4.6 to 7.9	13.4	*0.3	-0.1 to 0.6
25 to 34 years.....	5	3.5 to 7.6	10.8	*-0.2	-0.6 to 0.2	7	5.6 to 9.6	10.5	*0.0	-0.4 to 0.4
35 to 44 years.....	6	4.1 to 8.6	10.1	*0.0	-0.4 to 0.5	7	5.3 to 9.3	10.1	*-0.3	-0.7 to 0.1
45 to 54 years.....	4	2.7 to 6.3	10.8	*-0.1	-0.5 to 0.2	6	4.4 to 7.9	10.5	*0.1	-0.3 to 0.4
55 to 64 years.....	6	3.8 to 8.2	9.6	*0.2	-0.2 to 0.6	6	4.3 to 8.3	8.3	*-0.1	-0.4 to 0.2
65 to 74 years.....	7	5.0 to 10.8	7.5	*-0.1	-0.5 to 0.3	8	5.5 to 10.5	6.4	*0.3	0.0 to 0.6
75 years and over.....	4	2.2 to 8.3	4.1	*0.0	-0.3 to 0.2	4	2.4 to 7.5	3.7	*-0.1	-0.2 to 0.1
NEGRO										
Under 5 years.....	10	3.9 to 26.4	0.8	*0.0	-0.2 to 0.2	2	0.3 to 9.3	0.8	*0.0	-0.1 to 0.2
5 to 14 years.....	6	2.6 to 14.6	1.6	*0.0	-0.2 to 0.2	1	0.4 to 4.0	3.0	*-0.1	-0.2 to 0.0
15 to 24 years.....	11	4.7 to 26.7	0.8	*0.0	-0.2 to 0.2	7	3.4 to 13.8	1.5	*0.1	-0.1 to 0.2
25 to 34 years.....	3	0.6 to 20.2	0.6	*0.0	-0.2 to 0.1	8	3.2 to 22.0	0.6	*0.1	-0.1 to 0.2
35 to 44 years.....	9	3.0 to 27.4	0.6	*0.1	0.0 to 0.3	5	1.9 to 12.9	1.0	*0.1	-0.1 to 0.2
45 to 54 years.....	23	10.5 to 51.4	0.5	*-0.1	-0.3 to 0.1	16	8.7 to 30.3	0.8	*0.0	-0.2 to 0.2
55 to 64 years.....	12	4.5 to 31.0	0.6	*0.0	-0.1 to 0.2	31	18.1 to 51.9	0.6	*-0.1	-0.2 to 0.1
65 to 74 years.....	11	4.3 to 29.3	0.7	*0.0	-0.2 to 0.2	28	16.1 to 48.1	0.6	*0.0	-0.2 to 0.2
75 years and over.....	7	1.2 to 39.0	0.3	*0.0	-0.2 to 0.1	27	12.4 to 60.6	0.3	*0.0	-0.1 to 0.1
OTHER RACES										
Total.....	14	3.8 to 53.5	0.2	*0.1	-0.1 to 0.3	37	17.6 to 77.3	0.2	*0.1	0.0 to 0.3

*Not different from zero at the 95-percent confidence level.

S Does not meet publication standards.

X Not applicable.

Source: Table 10.

Table 19. Indexes—Sex and Race

(See text for explanation of indexes)

Sex and race	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
Sex.....	2	1.8 to 2.4	¹ 48.0	*0.0	¹ -0.2 to 0.1
RACE					
L-fold index.....	3	2.8 to 4.0	(X)	(X)	(X)
White.....	3	2.8 to 4.0	90.5	-0.3	-0.4 to -0.2
Negro.....	1	1.0 to 1.8	8.7	*-0.1	0.0 to 0.1
Other races.....	19	15.5 to 24.2	0.9	0.2	0.1 to 0.3

¹Not different from zero at the 95-percent confidence level.

X Not applicable.

¹Figures refer to the classification of males. The corresponding figures for females are the complement (52.0 and -0.1 to 0.2 respectively).

Source: Tables 6 and 7.

Table 20. Relationship to Household Head by Residence, Age, Race, and Sex

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total	Census classification						
		Head of household			Wife	Child	Other relative	Non- relative
		Total	Family head	Primary individual				
MALE								
United States, Total								
Total, all ages.....	10,319	5,442	5,103	339	3	4,482	287	105
Head.....	5,442	5,390	5,067	323	2	14	16	20
Primary family head.....	5,104	5,072	5,050	22	2	14	12	4
Primary individual.....	338	318	17	301	-	-	4	16
Wife.....	-	-	-	-	-	-	-	-
Child.....	4,486	22	22	-	1	4,425	33	5
Other relative.....	291	15	12	3	-	36	233	7
Nonrelative.....	100	15	2	13	-	7	5	73
Under 14 years.....	3,082	-	-	-	-	2,970	98	14
Head.....	-	-	-	-	-	-	-	-
Primary family head.....	-	-	-	-	-	-	-	-
Primary individual.....	-	-	-	-	-	-	-	-
Wife.....	-	-	-	-	-	-	-	-
Child.....	2,966	-	-	-	-	2,943	18	5
Other relative.....	99	-	-	-	-	20	79	-
Nonrelative.....	17	-	-	-	-	7	1	9
14 to 19 years.....	1,184	19	16	3	-	1,110	42	13
Head.....	19	15	14	1	-	3	-	1
Primary family head.....	17	14	13	1	-	3	-	-
Primary individual.....	2	1	1	-	-	-	-	1
Wife.....	-	-	-	-	-	-	-	-
Child.....	1,105	2	2	-	-	1,096	7	-
Other relative.....	48	1	-	1	-	11	34	2
Nonrelative.....	12	1	-	1	-	-	1	10
20 to 24 years.....	580	318	293	25	1	221	23	17
Head.....	315	313	289	24	-	1	1	-
Primary family head.....	291	290	288	2	-	1	-	-
Primary individual.....	24	23	1	22	-	-	1	-
Wife.....	-	-	-	-	-	-	-	-
Child.....	229	4	4	-	1	219	5	-
Other relative.....	18	-	-	-	-	1	16	1
Nonrelative.....	18	1	-	1	-	-	1	16
25 to 44 years.....	2,471	2,262	2,176	86	1	154	29	25
Head.....	2,268	2,246	2,166	80	1	6	5	10
Primary family head.....	2,178	2,166	2,158	8	1	6	3	2
Primary individual.....	90	80	8	72	-	-	2	8
Wife.....	-	-	-	-	-	-	-	-
Child.....	152	5	5	-	-	146	1	-
Other relative.....	29	3	3	-	-	2	23	1
Nonrelative.....	22	8	2	6	-	-	-	14
45 to 64 years.....	2,140	2,049	1,932	117	-	26	39	26
Head.....	2,046	2,032	1,919	113	-	4	4	6
Primary family head.....	1,934	1,925	1,917	8	-	4	3	2
Primary individual.....	112	107	2	105	-	-	1	4
Wife.....	-	-	-	-	-	-	-	-
Child.....	32	10	10	-	-	20	2	-
Other relative.....	40	4	3	1	-	2	32	2
Nonrelative.....	22	3	-	3	-	-	1	18

- Represents zero.

Table 20. Relationship to Household Head by Residence, Age, Race, and Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total	Census classification						
		Head of household			Wife	Child	Other relative	Non- relative
		Total	Family head	Primary individual				
MALE--Continued								
United States, Total--Continued								
65 years and over.....	862	794	686	108	1	1	56	10
Head.....	794	784	679	105	1	-	6	3
Primary family head.....	684	677	674	3	1	-	6	-
Primary individual.....	110	107	5	102	-	-	-	3
Wife.....	-	-	-	-	-	-	-	-
Child.....	2	1	1	-	-	1	-	-
Other relative.....	57	7	6	1	-	-	49	1
Nonrelative.....	9	2	-	2	-	-	1	6
United States, Negro								
Total, 14 years and over.....	535	364	322	42	-	125	31	15
Head.....	369	362	321	41	-	2	2	3
Primary family head.....	325	322	318	4	-	2	1	-
Primary individual.....	44	40	3	37	-	-	1	3
Wife.....	-	-	-	-	-	-	-	-
Child.....	124	-	-	-	-	121	3	-
Other relative.....	31	1	1	-	-	2	26	2
Nonrelative.....	11	1	-	1	-	-	-	10
Central Cities of SMSA's, Total								
Total, 14 years and over.....	1,977	1,502	1,365	137	-	366	63	46
Head.....	1,506	1,480	1,349	131	-	7	6	13
Primary family head.....	1,365	1,350	1,343	7	-	7	4	4
Primary individual.....	141	130	6	124	-	-	2	9
Wife.....	-	-	-	-	-	-	-	-
Child.....	372	9	9	-	-	357	6	-
Other relative.....	62	6	5	1	-	2	51	3
Nonrelative.....	37	7	2	5	-	-	-	30
Central Cities of SMSA's, Negro								
Total, 14 years and over.....	287	195	172	23	-	65	15	12
Head.....	200	195	172	23	-	1	1	3
Primary family head.....	173	172	170	2	-	1	-	-
Primary individual.....	27	23	2	21	-	-	1	3
Wife.....	-	-	-	-	-	-	-	-
Child.....	66	-	-	-	-	64	2	-
Other relative.....	14	-	-	-	-	-	12	2
Nonrelative.....	7	-	-	-	-	-	-	7
Rural Farm								
Total, 14 years and over.....	433	298	286	12	-	107	18	10
Head.....	300	293	281	12	-	3	4	-
Primary family head.....	289	283	281	2	-	3	3	-
Primary individual.....	11	10	-	10	-	-	1	-
Wife.....	-	-	-	-	-	-	-	-
Child.....	105	3	3	-	-	101	1	-
Other relative.....	20	2	2	-	-	3	13	2
Nonrelative.....	8	-	-	-	-	-	-	8
FEMALE								
United States, Total								
Total, all ages.....	11,183	1,410	565	845	4,964	4,205	469	135
Head.....	1,422	1,344	516	828	19	4	44	11
Primary family head.....	580	518	500	18	13	4	43	2
Primary individual.....	842	826	16	810	6	-	1	9
Wife.....	4,989	23	15	8	4,918	11	14	23
Child.....	4,225	13	13	-	13	4,157	32	10
Other relative.....	441	22	20	2	10	30	376	3
Nonrelative.....	106	8	1	7	4	3	3	88
Under 14 years.....	2,905	-	-	-	1	2,788	100	16
Head.....	-	-	-	-	-	-	-	-
Primary family head.....	-	-	-	-	-	-	-	-
Primary individual.....	-	-	-	-	-	-	-	-
Wife.....	-	-	-	-	-	-	-	-
Child.....	2,800	-	-	-	1	2,775	17	7
Other relative.....	94	-	-	-	-	11	82	1
Nonrelative.....	11	-	-	-	-	2	1	8
14 to 19 years.....	1,205	12	2	10	78	1,054	44	17
Head.....	12	10	2	8	-	1	-	1
Primary family head.....	3	2	2	-	-	1	-	-
Primary individual.....	9	8	-	8	-	-	-	1
Wife.....	74	1	-	1	73	-	-	-
Child.....	1,055	-	-	-	4	1,043	6	2
Other relative.....	49	-	-	-	1	10	38	-
Nonrelative.....	15	1	-	1	-	-	-	14

- Represents zero.

Table 20. Relationship to Household Head by Residence, Age, Race, and Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total	Census classification						
		Head of household			Wife	Child	Other relative	Non- relative
		Total	Family head	Primary individual				
FEMALE--Continued								
United States, Total--Continued								
20 to 24 years.....	760	62	32	30	439	214	20	25
Head.....	59	55	30	25	-	1	-	3
Primary family head.....	31	30	30	-	-	1	-	-
Primary individual.....	28	25	-	25	-	-	-	3
Wife.....	445	3	1	2	435	2	1	4
Child.....	210	-	-	-	-	207	3	-
Other relative.....	24	1	1	-	3	4	16	-
Nonrelative.....	22	3	-	3	1	-	-	18
25 to 44 years.....	2,731	290	208	82	2,258	108	38	37
Head.....	283	269	190	79	9	2	2	1
Primary family head.....	205	192	188	4	9	2	2	-
Primary individual.....	78	77	2	75	-	-	-	3
Wife.....	2,278	14	13	1	2,241	2	8	13
Child.....	112	4	4	-	3	101	4	-
Other relative.....	30	-	-	-	3	3	24	-
Nonrelative.....	28	3	1	2	2	-	-	23
45 to 64 years.....	2,394	511	214	297	1,743	38	79	23
Head.....	505	484	192	292	7	-	11	3
Primary family head.....	208	195	184	11	2	-	11	-
Primary individual.....	297	289	8	281	5	-	-	3
Wife.....	1,751	5	1	4	1,729	7	4	6
Child.....	47	9	9	-	5	30	2	-
Other relative.....	76	12	12	-	1	1	61	-
Nonrelative.....	15	1	-	1	1	-	1	13
65 years and over.....	1,188	535	109	426	445	3	188	17
Head.....	563	526	102	424	3	-	31	3
Primary family head.....	133	99	96	3	2	-	30	-
Primary individual.....	430	427	6	421	1	-	1	3
Wife.....	441	-	-	-	440	-	1	-
Child.....	1	-	-	-	-	1	-	-
Other relative.....	168	9	7	2	2	1	155	-
Nonrelative.....	15	-	-	-	-	1	1	13
United States, Negro								
Total, 14 years and over.....	674	176	113	63	310	127	53	8
Head.....	175	164	103	61	5	1	4	1
Primary family head.....	114	106	100	6	3	1	4	-
Primary individual.....	61	58	3	55	2	-	-	1
Wife.....	312	5	4	1	302	1	2	2
Child.....	131	4	4	-	1	125	1	-
Other relative.....	49	2	2	-	1	-	46	-
Nonrelative.....	7	1	-	1	1	-	-	5
Central Cities of SMSA's, Total								
Total, 14 years and over.....	2,444	577	220	357	1,321	372	126	48
Head.....	576	545	201	344	3	1	22	5
Primary family head.....	223	196	190	6	2	1	22	-
Primary individual.....	353	349	11	338	1	-	-	3
Wife.....	1,328	10	3	7	1,307	2	4	-
Child.....	384	7	7	-	6	365	5	-
Other relative.....	112	11	9	2	2	4	94	-
Nonrelative.....	44	4	-	4	3	-	1	39
Central Cities of SMSA's, Negro								
Total, 14 years and over.....	376	107	65	42	163	73	27	6
Head.....	106	103	63	40	-	1	1	1
Primary family head.....	66	64	61	3	-	1	1	-
Primary individual.....	40	39	2	37	-	-	-	1
Wife.....	163	1	-	1	160	1	-	1
Child.....	74	1	1	-	1	71	1	-
Other relative.....	27	1	1	-	1	-	25	-
Nonrelative.....	6	1	-	1	1	-	-	4
Rural Farm								
Total, 14 years and over.....	401	26	10	16	277	76	20	2
Head.....	27	23	7	16	1	-	3	-
Primary family head.....	12	8	7	1	1	-	3	-
Primary individual.....	15	15	-	15	-	-	-	-
Wife.....	276	1	1	-	273	-	2	-
Child.....	75	1	1	-	-	74	-	-
Other relative.....	20	1	1	-	3	2	14	-
Nonrelative.....	3	-	-	-	-	-	1	-

- Represents zero.

Table 21. Indexes—Relationship to Household Head by Residence, Age, Race, and Sex

(See text for explanation of indexes)

Relationship to household head, sex, residence, race, and age	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Relationship to household head, sex, residence, race, and age	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
MALE						MALE--Continued					
United States, Total						Central Cities of SMSA's, Negro					
All ages						14 years and over					
L-fold index.....	4	3.6 to 4.6	(X)	(X)	(X)	L-fold index.....	8	4.6 to 13.6	(X)	(X)	(X)
Primary family head....	2	1.7 to 2.5	49.5	*0.0	-0.2 to 0.2	Primary family head....	4	1.5 to 8.6	60.3	*-0.4	-2.1 to 1.4
Primary individual.....	11	9.1 to 14.4	3.3	*0.0	-0.2 to 0.2	Primary individual.....	18	8.8 to 35.0	9.4	*-1.4	-3.5 to 0.7
Child.....	2	1.9 to 2.8	43.5	*0.0	-0.3 to 0.2	Child.....	3	1.0 to 8.9	23.0	*-0.4	-1.7 to 1.1
Other relative.....	20	16.5 to 24.1	2.8	*0.0	-0.2 to 0.2	Other relative.....	18	7.6 to 43.2	4.9	*0.3	-1.4 to 2.1
Nonrelative.....	29	22.4 to 37.7	1.0	*0.1	-0.1 to 0.2	Nonrelative.....	27	11.4 to 64.6	2.4	*1.7	0.0 to 4.2
Under 14 years						Rural Farm, Total					
L-fold index.....	23	17.5 to 30.6	(X)	(X)	(X)	14 years and over					
Child.....	23	17.2 to 30.2	96.2	*0.1	-0.3 to 0.6	L-fold index.....	9	6.0 to 14.5	(X)	(X)	(X)
Other relative.....	20	14.9 to 28.1	3.2	*0.0	-0.4 to 0.4	Primary family head....	7	3.9 to 11.6	66.7	*-0.7	-2.4 to 1.0
Nonrelative.....	42	24.4 to 72.9	0.6	*-0.1	-0.3 to 0.2	Primary individual.....	13	4.5 to 40.2	2.5	*0.2	-0.7 to 1.2
14 to 19 years						Child.....	6	3.4 to 11.6	24.3	*0.5	-1.1 to 2.0
L-fold index.....	21	14.9 to 30.4	(X)	(X)	(X)	Other relative.....	33	18.1 to 58.4	4.6	*-0.5	-2.1 to 1.2
Primary family head....	22	10.3 to 45.0	1.4	*-0.1	-0.6 to 0.4	Nonrelative.....	11	3.0 to 42.3	1.9	*0.5	-0.3 to 1.7
Primary individual.....	(S)	(S)	0.2	(S)	(S)	FEMALE					
Child.....	16	10.6 to 24.3	93.3	*0.4	-0.4 to 1.3	United States, Total					
Other relative.....	25	16.6 to 38.8	4.1	*-0.5	-1.3 to 0.3	All ages					
Nonrelative.....	20	8.5 to 48.1	1.0	*0.1	-0.3 to 0.5	L-fold index.....	5	4.1 to 5.1	(X)	(X)	(X)
20 to 24 years						Primary family head....	13	11.3 to 15.8	5.2	*-0.1	-0.4 to 0.1
L-fold index.....	6	3.5 to 8.7	(X)	(X)	(X)	Primary individual.....	4	3.4 to 5.5	7.5	*0.0	-0.1 to 0.1
Primary family head....	3	1.4 to 5.5	50.2	*0.3	-0.7 to 1.4	Wife.....	2	1.8 to 2.6	44.6	*-0.2	-0.4 to 0.0
Primary individual.....	11	4.5 to 25.4	4.1	*0.2	-0.7 to 1.0	Child.....	2	1.8 to 2.1	37.8	*-0.2	-0.4 to 0.0
Child.....	4	2.5 to 7.7	39.5	-1.4	-2.6 to 0.1	Other relative.....	18	15.4 to 21.2	3.9	*0.3	0.0 to 0.5
Other relative.....	23	11.8 to 43.8	3.1	*0.9	-0.2 to 2.0	Nonrelative.....	27	21.3 to 34.9	1.0	0.3	0.1 to 0.4
Nonrelative.....	9	3.0 to 26.5	3.1	*-0.2	-0.9 to 0.5	Under 14 years					
25 to 44 years						L-fold index.....	19	13.6 to 25.6	(X)	(X)	(X)
L-fold index.....	11	8.3 to 14.0	(X)	(X)	(X)	Primary family head....	(S)	(S)	0.0	(S)	(S)
Primary family head....	7	5.3 to 10.1	88.1	*-0.1	-0.6 to 0.4	Child.....	18	12.9 to 24.6	96.4	*-0.4	-0.8 to 0.0
Primary individual.....	18	13.3 to 26.8	3.6	*-0.2	-0.6 to 0.3	Other relative.....	16	11.1 to 23.0	3.2	*0.2	-0.2 to 0.6
Child.....	5	2.9 to 8.3	6.2	*0.1	-0.2 to 0.4	Nonrelative.....	41	22.6 to 74.1	0.4	*0.2	-0.1 to 0.4
Other relative.....	21	11.8 to 37.0	1.2	*0.0	-0.3 to 0.3	14 to 19 years					
Nonrelative.....	41	25.9 to 64.3	0.9	*0.1	-0.2 to 0.5	L-fold index.....	10	6.7 to 14.4	(X)	(X)	(X)
45 to 64 years						Primary family head....	(S)	(S)	0.3	(S)	(S)
L-fold index.....	12	9.3 to 16.6	(X)	(X)	(X)	Primary individual.....	16	5.3 to 47.7	0.8	*0.1	-0.3 to 0.4
Primary family head....	9	6.0 to 12.2	90.4	*-0.1	-0.6 to 0.4	Wife.....	4	1.9 to 9.3	6.1	*0.3	-0.1 to 0.8
Primary individual.....	9	5.6 to 13.8	5.2	*0.2	-0.2 to 0.7	Child.....	9	5.8 to 13.2	87.6	*-0.1	-0.9 to 0.7
Child.....	31	19.7 to 50.2	1.5	*-0.3	-0.7 to 0.1	Other relative.....	19	11.8 to 30.7	4.1	*-0.4	-1.1 to 0.3
Other relative.....	19	11.6 to 32.2	1.9	*-0.1	-0.4 to 0.3	Nonrelative.....	13	4.8 to 33.2	1.2	*0.2	-0.2 to 0.5
Nonrelative.....	25	14.3 to 44.7	1.0	*0.2	-0.2 to 0.5	20 to 24 years					
65 years and over						L-fold index.....	7	4.6 to 9.5	(X)	(X)	(X)
L-fold index.....	10	7.0 to 14.4	(X)	(X)	(X)	Primary family head....	5	1.7 to 14.9	4.1	*0.1	-0.4 to 0.7
Primary family head....	8	5.1 to 11.9	79.4	*0.2	-0.9 to 1.3	Primary individual.....	14	7.2 to 28.7	3.7	*0.3	-0.5 to 1.1
Primary individual.....	7	4.3 to 12.5	12.8	*-0.2	-1.1 to 0.7	Wife.....	4	2.2 to 6.4	58.6	*-0.8	-1.8 to 0.2
Child.....	(S)	(S)	0.2	(S)	(S)	Child.....	3	1.8 to 6.1	27.6	*0.5	-0.4 to 1.4
Other relative.....	14	8.5 to 23.7	6.6	*-0.1	-1.0 to 0.8	Other relative.....	28	15.9 to 49.6	3.2	*-0.5	-1.5 to 0.4
Nonrelative.....	37	17.8 to 78.0	1.0	*0.1	-0.5 to 0.8	Nonrelative.....	24	13.3 to 43.8	2.9	*0.4	-0.5 to 1.3
United States, Negro						25 to 44 years					
14 years and over						L-fold index.....	10	7.7 to 12.0	(X)	(X)	(X)
L-fold index.....	8	5.0 to 11.4	(X)	(X)	(X)	Primary family head....	10	7.0 to 13.4	7.5	*0.1	-0.3 to 0.6
Primary family head....	4	2.4 to 7.8	60.8	*-0.6	-1.9 to 0.7	Primary individual.....	6	3.5 to 12.0	2.9	*0.2	-0.1 to 0.4
Primary individual.....	15	8.6 to 26.8	8.2	*-0.4	-1.7 to 1.0	Wife.....	7	5.4 to 9.2	83.4	-0.7	-1.3 to -0.2
Child.....	4	1.8 to 7.7	23.2	*0.2	-0.8 to 1.2	Child.....	9	5.3 to 13.6	4.1	*-0.2	-0.5 to 0.2
Other relative.....	17	9.2 to 31.9	5.8	*0.0	-1.2 to 1.2	Other relative.....	30	19.1 to 46.4	1.1	*0.3	0.0 to 0.6
Nonrelative.....	24	10.7 to 52.4	2.1	*0.8	-0.2 to 1.7	Nonrelative.....	30	18.8 to 46.6	1.0	*0.3	0.0 to 0.7
Central Cities of SMSA's, Total						14 years and over					
14 years and over						L-fold index.....	8	6.0 to 9.6	(X)	(X)	(X)
L-fold index.....	8	6.0 to 9.6	(X)	(X)	(X)	Primary family head....	5	3.9 to 7.0	69.0	*0.0	-0.7 to 0.7
Primary family head....	5	3.9 to 7.0	69.0	*0.0	-0.7 to 0.7	Primary individual.....	12	8.1 to 16.7	7.1	*-0.2	-0.8 to 0.4
Primary individual.....	12	8.1 to 16.7	7.1	*-0.2	-0.8 to 0.4	Child.....	4	2.7 to 6.0	18.8	*-0.3	-0.8 to 0.2
Child.....	4	2.7 to 6.0	18.8	*-0.3	-0.8 to 0.2	Other relative.....	19	12.6 to 28.8	3.1	*0.1	-0.5 to 0.6
Other relative.....	19	12.6 to 28.8	3.1	*0.1	-0.5 to 0.6	Nonrelative.....	28	18.7 to 42.8	1.9	*0.5	0.0 to 1.0
Nonrelative.....	28	18.7 to 42.8	1.9	*0.5	0.0 to 1.0						

See footnotes at end of table.

Table 21. Indexes—Relationship to Household Head by Residence, Age, Race, and Sex—Continued

(See text for explanation of indexes)

Relationship to household head, sex, residence, race, and age	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Relationship to household head, sex, residence, race, and age	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
FEMALE--Continued						FEMALE--Continued					
United States, Total						Central Cities of SMSA'S, Total					
45 to 64 years						14 years and over					
L-fold index.....	9	7.5 to 11.2	(X)	(X)	(X)	L-fold index.....	7	6.0 to 8.7	(X)	(X)	(X)
Primary family head....	14	10.7 to 18.4	8.7	*0.3	-0.4 to 0.9	Primary family head....	16	12.2 to 20.1	9.1	*-0.1	-0.8 to 0.5
Primary individual.....	6	4.3 to 8.7	12.4	*0.0	-0.5 to 0.5	Primary individual.....	6	4.0 to 7.9	14.4	*0.2	-0.3 to 0.7
Wife.....	3	2.1 to 4.0	54.3	*-0.3	-0.8 to 0.2	Wife.....	3	2.1 to 4.0	54.3	*-0.3	-0.8 to 0.2
Child.....	4	2.7 to 5.3	73.1	*-3.3	-0.8 to 0.2	Child.....	4	2.8 to 6.0	15.7	-0.5	-0.9 to -0.1
Other relative.....	30	20.1 to 44.5	2.0	*-0.4	-0.8 to 0.1	Other relative.....	22	16.7 to 29.3	4.6	*0.6	0.0 to 1.2
Nonrelative.....	22	15.6 to 31.1	3.2	*0.1	-0.4 to 0.6	Nonrelative.....	22	14.2 to 34.5	1.8	*0.2	-0.2 to 0.5
	37	21.9 to 63.0	0.6	*0.3	0.0 to 0.7						
65 years and over						Central Cities of SMSA'S, Negro					
14 years and over						14 years and over					
L-fold index.....	7	5.8 to 9.6	(X)	(X)	(X)	L-fold index.....	7	4.1 to 10.5	(X)	(X)	(X)
Primary family head....	23	17.3 to 30.5	11.2	-2.0	-3.2 to -0.8	Primary family head....	8	4.3 to 16.0	17.6	*-0.3	-2.0 to 1.4
Primary individual.....	3	1.5 to 4.3	36.2	*-0.3	-1.0 to 0.3	Primary individual.....	11	5.5 to 21.9	10.6	*0.5	-1.0 to 2.1
Wife.....	1	0.5 to 2.4	37.1	*0.3	-0.1 to 0.8	Wife.....	3	1.5 to 7.2	43.4	*0.0	-1.4 to 1.4
Child.....	(S)	(S)	1.0	(S)	(S)	Child.....	4	1.8 to 10.1	19.7	*-0.3	-1.6 to 1.0
Other relative.....	15	11.3 to 20.4	14.1	1.7	0.5 to 2.8	Other relative.....	8	3.1 to 20.9	7.2	*0.0	-1.2 to 1.2
Nonrelative.....	19	8.6 to 42.1	1.3	*0.2	-0.3 to 0.6	Nonrelative.....	34	12.9 to 88.7	1.6	*0.0	-1.2 to 1.2
Negro						Rural Farm, Total					
14 years and over						14 years and over					
L-fold index.....	9	6.3 to 11.7	(X)	(X)	(X)	L-fold index.....	8	5.0 to 13.5	(X)	(X)	(X)
Primary family head....	14	9.8 to 21.0	16.9	*-0.2	-1.7 to 1.4	Primary family head....	37	18.7 to 74.8	3.0	*-0.5	-2.0 to 1.0
Primary individual.....	12	7.3 to 21.1	9.1	*0.3	-0.9 to 1.5	Primary individual.....	3	0.6 to 19.6	3.7	*0.3	-0.5 to 1.5
Wife.....	5	3.4 to 8.6	46.3	*-0.3	-1.6 to 1.0	Wife.....	4	2.0 to 8.5	68.8	*0.3	-1.2 to 1.7
Child.....	4	1.9 to 7.7	19.4	*-0.6	-1.5 to 0.3	Child.....	2	0.8 to 7.3	18.7	*0.3	-0.8 to 1.3
Other relative.....	11	5.7 to 19.8	7.3	*0.6	-0.4 to 1.6	Other relative.....	32	17.9 to 55.8	5.0	*0.0	-1.8 to 1.8
Nonrelative.....	34	14.2 to 80.2	1.0	*0.2	-0.6 to 0.9	Nonrelative.....	(S)	(S)	0.8	(S)	(S)

*Not different from zero at 95-percent confidence level.

S Does not meet publication standards.

X Not applicable.

Source: Table 20.

Table 22. Marital Status for Persons 14 Years Old and Over by Residence, Age, Race, and Sex

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total, 14 years old and over	Census classification					
		Married			Widowed	Divorced	Single
		Total	Excluding separated	Separated			
MALE							
United States, Total							
Total, 14 years old and over.....	7,210	5,146	5,072	74	170	145	1,749
Married.....	5,144	5,104	5,047	57	14	14	12
Excluding separated.....	5,074	5,053	5,037	16	7	5	9
Separated.....	70	51	10	41	7	9	3
Widowed.....	177	11	6	5	149	16	1
Divorced.....	120	11	5	6	4	101	4
Single.....	1,769	20	14	6	3	14	1,732
14 to 19 years.....	1,161	24	23	1	1	1	1,135
Married.....	20	17	16	1	-	-	3
Excluding separated.....	20	17	16	1	-	-	3
Separated.....	-	-	-	-	-	-	-
Widowed.....	-	-	-	-	-	-	-
Divorced.....	-	-	-	-	-	-	-
Single.....	1,141	7	7	-	1	1	1,132
20 to 24 years.....	578	314	308	6	-	8	256
Married.....	310	309	305	4	-	1	-
Excluding separated.....	306	306	302	4	-	-	-
Separated.....	4	3	3	-	-	1	-
Widowed.....	-	-	-	-	-	-	-
Divorced.....	6	2	1	1	-	4	3
Single.....	262	3	2	1	-	3	256
25 to 44 years.....	2,470	2,194	2,163	31	10	46	220
Married.....	2,192	2,181	2,157	24	4	4	3
Excluding separated.....	2,169	2,159	2,151	8	4	3	3
Separated.....	23	22	6	16	-	1	-
Widowed.....	4	-	-	-	4	-	-
Divorced.....	48	6	3	3	1	38	3
Single.....	226	7	3	4	1	4	214
45 to 64 years.....	2,139	1,935	1,906	29	39	62	103
Married.....	1,941	1,925	1,901	24	5	5	6
Excluding separated.....	1,911	1,903	1,900	3	3	2	3
Separated.....	30	22	1	21	2	3	3
Widowed.....	44	6	3	3	33	5	-
Divorced.....	50	3	1	2	-	46	1
Single.....	104	1	1	-	1	6	96
65 years and over.....	862	679	672	7	120	28	35
Married.....	681	672	668	4	5	4	-
Excluding separated.....	668	668	668	-	-	-	-
Separated.....	13	4	-	4	5	4	-
Widowed.....	129	5	3	2	112	11	1
Divorced.....	16	-	-	-	3	13	-
Single.....	36	2	1	1	-	-	34
United States, Negro							
Total, 14 years old and over.....	535	340	320	20	24	17	154
Married.....	342	332	317	15	5	3	2
Excluding separated.....	320	317	315	2	1	1	1
Separated.....	22	15	2	13	4	2	1
Widowed.....	24	2	-	2	18	4	-
Divorced.....	7	1	-	1	-	6	-
Single.....	162	5	3	2	1	4	152
Central Cities of SMSA's, Total							
Total, 14 years old and over.....	1,977	1,374	1,348	26	56	64	483
Married.....	1,389	1,365	1,343	22	7	9	8
Excluding separated.....	1,353	1,342	1,337	5	2	3	6
Separated.....	36	23	6	17	5	6	2
Widowed.....	52	1	1	-	45	6	-
Divorced.....	44	3	1	2	1	38	2
Single.....	492	5	3	2	3	11	473
Central Cities of SMSA's, Negro							
Total, 14 years old and over.....	287	183	172	11	12	12	80
Married.....	186	178	170	8	4	3	1
Excluding separated.....	170	168	168	0	1	1	-
Separated.....	16	10	2	8	3	2	1
Widowed.....	9	-	-	-	7	2	-
Divorced.....	4	1	-	1	-	3	-
Single.....	88	4	2	2	1	4	79
Rural Farm							
Total, 14 years old and over.....	433	294	288	6	8	7	124
Married.....	292	290	286	4	-	2	-
Excluding separated.....	287	287	286	1	-	-	-
Separated.....	5	3	-	3	-	2	-
Widowed.....	10	2	1	1	8	-	-
Divorced.....	6	1	-	1	-	5	-
Single.....	125	1	1	-	-	-	124

- Represents zero.

Table 22. Marital Status for Persons 14 Years Old and Over by Residence, Age, Race, and Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total, 14 years old and over	Census classification					
		Married			Widowed	Oivorced	Single
		Total	Excluding separated	Separated			
FEMALE							
United States, Total							
Total, 14 years old and over.....	8,253	5,278	5,123	155	956	311	1,708
Married.....	5,272	5,216	5,090	126	15	25	16
Excluding separated.....	5,121	5,098	5,081	17	4	10	9
Separated.....	151	118	9	109	11	15	7
Widowed.....	971	20	11	9	912	32	7
Oivorced.....	291	24	9	15	18	245	4
Single.....	1,719	18	13	5	11	9	1,681
14 to 19 years.....	1,187	103	98	5	2	3	1,079
Married.....	101	96	93	3	-	1	4
Excluding separated.....	95	91	91	-	-	1	3
Separated.....	6	5	2	3	-	-	1
Widowed.....	-	-	-	-	-	-	-
Oivorced.....	2	1	-	1	-	1	-
Single.....	1,084	6	5	1	2	1	1,075
20 to 24 years.....	757	499	477	22	2	13	243
Married.....	502	496	474	22	1	1	4
Excluding separated.....	479	475	471	4	1	-	3
Separated.....	23	21	3	18	-	1	1
Widowed.....	1	-	-	-	1	-	-
Divorced.....	13	1	1	-	-	11	1
Single.....	241	2	2	-	-	1	238
25 to 44 years.....	2,728	2,387	2,316	71	44	128	169
Married.....	2,378	2,356	2,301	55	2	14	6
Excluding separated.....	2,315	2,304	2,299	5	1	7	3
Separated.....	63	52	2	50	1	7	3
Widowed.....	45	4	3	1	38	1	2
Oivorced.....	129	18	6	12	2	109	-
Single.....	176	9	6	3	2	4	161
45 to 64 years.....	2,394	1,821	1,776	45	311	131	131
Married.....	1,825	1,807	1,769	38	7	9	2
Excluding separated.....	1,779	1,775	1,767	8	2	2	-
Separated.....	46	32	2	30	5	7	2
Widowed.....	320	9	5	4	289	20	2
Oivorced.....	117	4	2	2	12	100	1
Single.....	132	1	-	1	3	2	126
65 years and over.....	1,187	468	456	12	597	36	86
Married.....	466	461	453	8	5	-	-
Excluding separated.....	453	453	453	-	-	-	-
Separated.....	13	8	-	8	5	-	-
Widowed.....	605	7	3	4	584	11	3
Divorced.....	30	-	-	-	4	24	2
Single.....	86	-	-	-	4	1	81
United States, Negro							
Total, 14 years old and over.....	674	383	331	52	93	39	159
Married.....	386	365	325	40	9	8	4
Excluding separated.....	330	325	323	2	1	2	2
Separated.....	56	40	2	38	8	6	2
Widowed.....	90	6	1	5	79	3	2
Divorced.....	35	5	2	3	1	28	1
Single.....	163	7	3	4	4	-	152
Central Cities of SMSA's, Total							
Total, 14 years old and over.....	2,444	1,430	1,362	68	335	133	546
Married.....	1,438	1,407	1,350	57	6	17	8
Excluding separated.....	1,367	1,355	1,348	7	1	8	3
Separated.....	71	52	2	50	5	9	5
Widowed.....	338	9	3	6	316	11	2
Oivorced.....	118	6	2	4	7	102	3
Single.....	550	8	7	1	6	3	533
Central Cities of SMSA's, Negro							
Total, 14 years old and over.....	376	209	174	35	46	30	91
Married.....	210	196	169	27	4	7	3
Excluding separated.....	174	169	168	1	-	2	1
Separated.....	38	27	1	26	4	5	2
Widowed.....	48	6	1	5	39	3	-
Oivorced.....	23	3	1	2	-	20	-
Single.....	95	4	3	1	3	-	88
Rural Farm							
Total, 14 years old and over.....	401	287	285	2	26	3	85
Married.....	287	287	285	2	-	-	-
Excluding separated.....	285	285	285	-	-	-	-
Separated.....	2	2	-	2	-	-	-
Widowed.....	26	-	-	-	26	-	-
Oivorced.....	3	-	-	-	-	3	-
Single.....	85	-	-	-	-	-	85

- Represents zero.

Table 23. Indexes—Marital Status for Persons 14 Years Old and Over by Residence, Age, Race, and Sex

(See text for explanation of indexes)

Marital status, sex, residence, race, and age	Male					Female				
	Index of inconsis- tency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Index of inconsis- tency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
UNITED STATES, TOTAL										
14 Years Old and Over										
L-fold index.....	5	4.0 to 5.5	(X)	(X)	(X)	5	4.3 to 5.6	(X)	(X)	(X)
Married, except separated.....	2	1.9 to 3.0	70.4	*0.0	-0.3 to 0.2	2	1.7 to 2.6	62.1	*0.0	-0.2 to 0.3
Separated.....	43	33.8 to 56.0	1.0	*0.1	-0.2 to 0.3	29	23.7 to 36.3	1.8	*0.1	-0.2 to 0.3
Widowed.....	14	10.9 to 19.2	2.5	*-0.1	-0.3 to 0.1	6	5.0 to 7.4	11.8	*-0.2	-0.4 to 0.1
Divorced.....	24	18.8 to 31.1	1.7	0.4	0.1 to 0.6	19	16.0 to 23.3	3.5	*0.2	0.0 to 0.5
Single.....	2	1.6 to 2.1	24.5	-0.3	-0.5 to -0.1	2	1.9 to 3.1	20.8	*-0.1	-0.3 to 0.1
14 to 19 Years										
L-fold index.....	29	16.7 to 50.0	(X)	(X)	(X)	9	5.4 to 14.2	(X)	(X)	(X)
Married, except separated.....	26	14.4 to 47.2	1.7	*0.3	-0.3 to 0.9	6	3.4 to 11.2	8.0	*0.3	-0.3 to 0.8
Separated.....	(S)	(S)	0.0	(S)	(S)	46	19.2 to 100.0	0.5	*-0.1	-0.5 to 0.3
Widowed.....	(S)	(S)	0.0	(S)	(S)	(S)	(S)	0.0	(S)	(S)
Divorced.....	(S)	(S)	0.0	(S)	(S)	(S)	(S)	0.2	(S)	(S)
Single.....	27	15.1 to 47.0	98.3	*-0.5	-1.1 to 0.1	7	3.9 to 11.7	91.3	*-0.4	-1.1 to 0.2
20 to 24 Years										
L-fold index.....	5	3.3 to 8.8	(X)	(X)	(X)	5	4.0 to 7.6	(X)	(X)	(X)
Married, except separated.....	3	1.9 to 6.5	52.9	*0.4	-0.8 to 1.5	4	2.3 to 6.7	63.3	*-0.3	-1.3 to 0.8
Separated.....	(S)	(S)	0.7	*0.4	-0.8 to 1.5	21	10.7 to 39.7	3.0	*-0.1	-1.0 to 0.7
Widowed.....	(S)	(S)	(S)	(S)	(S)	(S)	(S)	0.1	(S)	(S)
Divorced.....	43	19.6 to 96.1	1.0	*0.4	-0.6 to 1.0	16	6.0 to 41.0	1.7	*0.0	-0.6 to 0.6
Single.....	2	1.0 to 4.7	45.3	-1.0	-2.3 to -0.1	2	1.2 to 4.9	31.8	*0.3	-0.5 to 1.1
25 to 44 Years										
L-fold index.....	9	6.4 to 11.4	(X)	(X)	(X)	10	7.5 to 12.1	(X)	(X)	(X)
Married, except separated.....	6	3.9 to 8.1	87.8	*-0.2	-0.7 to 0.2	5	3.3 to 6.7	84.9	*0.0	-0.4 to 0.5
Separated.....	41	27.0 to 62.9	0.9	*0.3	-0.1 to 0.7	26	18.5 to 36.6	2.3	*0.3	-0.1 to 0.7
Widowed.....	43	19.4 to 95.2	0.2	*0.2	0.0 to 0.5	15	8.6 to 25.7	1.7	*0.0	-0.3 to 0.2
Divorced.....	20	12.2 to 31.1	1.9	*-0.1	-0.4 to 0.3	16	11.6 to 21.9	4.7	*0.0	-0.5 to 0.4
Single.....	4	2.8 to 7.1	9.2	*-0.2	-0.6 to 0.1	7	4.7 to 10.8	6.5	*-0.3	-0.6 to 0.1
45 to 64 Years										
L-fold index.....	10	7.4 to 13.6	(X)	(X)	(X)	8	6.5 to 10.0	(X)	(X)	(X)
Married, except separated.....	4	2.6 to 6.7	89.3	*-0.2	-0.6 to 0.2	2	1.5 to 3.5	74.3	*-0.1	-0.5 to 0.3
Separated.....	29	18.1 to 47.2	1.4	*-0.1	-0.4 to 0.4	35	24.3 to 49.6	1.9	*0.0	-0.5 to 0.4
Widowed.....	21	12.9 to 33.8	2.1	*-0.2	-0.6 to 0.2	10	7.4 to 12.7	13.4	*-0.4	-1.0 to 0.2
Divorced.....	18	11.8 to 28.6	2.3	0.6	0.1 to 1.0	20	15.3 to 27.2	4.9	*0.6	0.0 to 1.2
Single.....	8	4.6 to 12.7	4.9	*0.0	-0.4 to 0.3	4	2.4 to 8.0	5.5	*0.0	-0.3 to 0.3
65 Years and Over										
L-fold index.....	10	6.8 to 13.8	(X)	(X)	(X)	5	3.8 to 7.3	(X)	(X)	(X)
Married, except separated.....	1	0.5 to 3.5	77.5	*0.5	-0.1 to 1.2	1	0.2 to 1.6	38.2	*0.3	-0.1 to 0.8
Separated.....	61	34.3 to 100.0	1.5	*-0.7	-1.5 to 0.1	36	18.9 to 70.0	1.2	*-0.1	-0.6 to 0.5
Widowed.....	17	7.9 to 17.5	15.0	*-1.0	-2.2 to 0.1	6	4.1 to 8.1	51.0	*-0.7	-1.7 to 0.3
Divorced.....	42	26.3 to 66.9	1.9	1.4	0.4 to 2.4	28	17.6 to 44.8	2.5	*0.5	-0.2 to 1.2
Single.....	4	1.5 to 13.2	4.2	*-0.1	-0.6 to 0.4	6	3.4 to 11.7	7.3	*0.0	-0.6 to 0.6
UNITED STATES, NEGRO										
14 Years Old and Over										
L-fold index.....	11	7.4 to 15.0	(X)	(X)	(X)	12	9.1 to 15.6	(X)	(X)	(X)
Married, except separated.....	4	2.1 to 7.2	59.8	*0.0	-1.2 to 1.2	4	2.7 to 7.4	49.0	*0.2	-1.0 to 1.3
Separated.....	40	24.2 to 65.0	4.1	*-0.4	-1.9 to 1.2	32	22.7 to 45.8	8.3	*-0.6	-2.3 to 1.1
Widowed.....	26	14.8 to 46.3	4.5	*0.0	-1.4 to 1.4	16	10.6 to 23.5	13.4	*0.5	-1.1 to 2.0
Divorced.....	51	28.8 to 90.1	1.3	1.9	0.5 to 3.2	26	16.1 to 41.1	5.2	*0.6	-0.7 to 1.9
Single.....	5	3.1 to 9.5	30.3	-1.5	-2.8 to -0.2	7	1.6 to 11.7	24.2	*-0.6	-1.9 to 0.7
CENTRAL CITIES OF SMSA's, TOTAL										
14 Years Old and Over										
L-fold index.....	7	5.6 to 9.2	(X)	(X)	(X)	6	5.1 to 7.8	(X)	(X)	(X)
Married, except separated.....	3	2.2 to 4.6	68.4	*-0.3	-0.8 to 0.3	3	1.9 to 3.9	55.9	*-0.2	-0.7 to 0.3
Separated.....	46	31.5 to 66.8	1.8	*-0.5	-1.1 to 0.0	29	21.0 to 39.7	2.9	*-0.1	-0.6 to 0.4
Widowed.....	17	10.7 to 27.3	2.6	*0.2	-0.2 to 0.6	7	5.2 to 9.6	13.8	*-0.1	-0.7 to 0.4
Divorced.....	30	21.4 to 43.3	2.2	1.0	0.4 to 1.6	20	14.8 to 26.4	4.8	0.6	0.1 to 1.2
Single.....	4	2.7 to 5.7	24.9	*-0.5	-1.0 to 0.1	4	2.5 to 5.1	22.5	*-0.2	-0.6 to 0.3

See footnotes at end of table.

Table 23. Indexes—Marital Status for Persons 14 Years Old and Over by Residence, Age, Race, and Sex—Continued

(See text for explanation of indexes)

Marital status, sex, residence, race, and age	Male					Female				
	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
CENTRAL CITIES OF SMSA's, NEGRO										
14 Years Old and Over										
L-fold index.....	14	9.0 to 21.1	(X)	(X)	(X)	13	9.5 to 18.7	(X)	(X)	(X)
Married, except separated.....	4	2.0 to 9.6	59.2	*0.7	-1.2 to 2.5	5	2.9 to 10.0	45.7	*0.5	-1.2 to 2.3
Separated.....	43	23.6 to 77.3	5.6	*-1.7	-4.2 to 0.7	32	20.7 to 49.1	10.1	*-0.8	-3.3 to 1.7
Widowed.....	35	16.5 to 72.4	3.1	*1.1	-0.9 to 3.0	19	11.9 to 31.9	12.8	*-0.5	-2.7 to 1.7
Divorced.....	64	34.3 to 100.0	1.4	2.8	0.5 to 5.1	26	15.2 to 45.6	6.1	*1.9	-0.1 to 3.9
Single.....	8	4.5 to 15.7	30.7	-2.8	-5.1 to -0.5	7	3.8 to 13.3	25.3	*-1.1	-2.8 to 0.7
RURAL FARM, TOTAL										
14 Years Old and Over										
L-fold index.....	3	1.6 to 7.1	(X)	(X)	(X)	0	0.0 to 2.2	(X)	(X)	(X)
Married, except separated.....	2	0.5 to 4.7	66.3	*0.2	-0.7 to 1.2	0	0.0 to 2.4	71.1	*0.0	-1.0 to 1.0
Separated.....	46	19.3 to 100.0	1.2	*0.2	-0.9 to 1.4	(S)	(S)	0.5	(S)	(S)
Widowed.....	11	3.0 to 42.3	2.3	*-0.5	-1.7 to 0.3	0	0.0 to 8.2	6.5	*0.0	-1.0 to 1.0
Divorced.....	23	7.8 to 70.3	1.4	*0.2	-0.7 to 1.2	(S)	(S)	0.8	(S)	(S)
Single.....	1	0.1 to 3.3	28.9	*-0.2	-1.4 to 0.4	0	0.0 to 3.0	21.2	*0.0	-1.0 to 1.0

*Not different from zero at 95-percent confidence level.
Source: Table 22.

X Not applicable.

S Does not meet publication standards.

Table 24. Years of School Completed for Persons 14 Years Old and Over by Age, Race, and Sex

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total	Census classification												
		Elementary				High school				College				
		0 to 4 years	5 years	6 and 7 years	8 years	1 year	2 years	3 years	4 years	1 year	2 years	3 years	4 years	5 years or more
TOTAL														
Both Sexes														
14 years old and over.....	15,462	594	220	1,162	2,004	1,163	1,387	1,159	4,732	686	673	313	780	589
Elementary: 0 to 4 years.....	559	387	55	52	28	6	6	11	9	3	-	-	1	1
5 years.....	208	49	73	52	13	2	4	1	8	-	1	2	-	3
6 and 7 years.....	1,073	64	61	641	212	32	19	11	29	-	-	1	-	3
8 years.....	2,058	39	12	289	1,358	186	74	19	69	6	5	-	1	-
High school: 1 year.....	1,095	12	5	46	166	640	147	37	28	7	4	1	1	1
2 years.....	1,299	6	1	25	67	167	784	160	78	4	3	-	2	2
3 years.....	996	4	4	10	26	33	179	598	125	9	3	3	2	-
4 years.....	5,077	21	7	36	111	84	154	289	4,030	177	75	38	39	16
College: 1 year.....	647	1	-	2	7	3	5	12	174	350	81	7	3	2
2 years.....	738	1	2	3	4	4	6	8	102	105	429	50	18	6
3 years.....	268	1	-	-	2	1	3	5	20	9	43	149	29	6
4 years.....	900	6	-	4	9	4	6	7	48	13	24	52	628	99
5 years or more.....	544	3	-	2	1	1	-	1	12	3	5	10	56	450
14 to 17 years old.....	1,727	10	10	223	442	404	399	229	6	2	-	1	-	1
Elementary: 0 to 4 years.....	7	4	-	1	1	-	-	1	-	-	-	-	-	-
5 years.....	7	-	5	1	1	-	-	-	-	-	-	-	-	-
6 and 7 years.....	212	-	5	167	29	6	3	1	1	-	-	-	-	-
8 years.....	478	4	-	45	379	42	6	2	-	-	-	-	-	-
High school: 1 year.....	413	2	-	8	27	326	42	4	1	1	-	1	-	1
2 years.....	381	-	-	1	4	26	330	20	-	-	-	-	-	-
3 years.....	216	-	-	-	-	3	17	194	1	1	-	-	-	-
4 years.....	11	-	-	-	1	1	1	6	2	-	-	-	-	-
College: 1 year.....	1	-	-	-	-	-	-	-	1	-	-	-	-	-
2 years.....	1	-	-	-	-	-	-	1	-	-	-	-	-	-
3 years.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4 years.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5 years or more.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18 to 21 years old.....	1,105	10	2	15	20	42	80	209	498	119	71	33	6	-
Elementary: 0 to 4 years.....	6	3	-	-	1	-	-	1	1	-	-	-	-	-
5 years.....	3	1	-	2	-	-	-	-	-	-	-	-	-	-
6 and 7 years.....	13	1	-	7	5	-	-	-	-	-	-	-	-	-
8 years.....	16	1	1	-	3	4	4	1	1	1	-	-	-	-
High school: 1 year.....	45	-	-	2	6	18	15	2	2	-	-	-	-	-
2 years.....	79	-	-	-	2	14	42	19	2	-	-	-	-	-
3 years.....	185	-	-	1	-	2	14	143	23	-	1	1	-	-
4 years.....	523	3	1	3	3	3	4	35	441	24	5	-	1	-
College: 1 year.....	130	1	-	-	-	1	1	4	20	86	17	-	-	-
2 years.....	66	-	-	-	-	-	-	3	6	8	44	5	-	-
3 years.....	31	-	-	-	-	-	-	-	1	-	4	25	1	-
4 years.....	8	-	-	-	-	-	-	1	1	-	-	2	4	-
5 years or more.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- Represents zero.

Table 24. Years of School Completed for Persons 14 Years Old and Over by Age, Race, and Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total	Census classification												
		Elementary				High school				College				
		0 to 4 years	5 years	6 and 7 years	8 years	1 year	2 years	3 years	4 years	1 year	2 years	3 years	4 years	5 years or more
TOTAL--Continued														
Both Sexes--Continued														
22 to 24 years old.....	851	9	1	19	24	29	50	43	399	68	54	44	87	24
Elementary: 0 to 4 years.....	7	<u>3</u>	1	-	1	-	1	-	1	-	-	-	-	-
5 years.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6 and 7 years.....	21	1	-	<u>14</u>	5	1	-	-	-	-	-	-	-	-
8 years.....	21	1	-	<u>3</u>	<u>12</u>	4	-	-	1	-	-	-	-	-
High school: 1 year.....	30	1	-	1	2	<u>17</u>	6	1	1	1	-	-	-	-
2 years.....	29	-	-	-	-	4	<u>18</u>	5	2	-	-	-	-	-
3 years.....	38	-	-	-	1	-	<u>14</u>	<u>18</u>	5	-	-	-	-	-
4 years.....	409	2	-	1	3	3	10	17	<u>342</u>	17	5	3	5	1
College: 1 year.....	76	-	-	-	-	-	-	2	30	<u>38</u>	3	1	1	1
2 years.....	69	-	-	-	-	-	-	-	12	9	<u>38</u>	7	3	-
3 years.....	39	1	-	-	-	-	-	-	2	1	4	<u>25</u>	6	-
4 years.....	90	-	-	-	-	-	1	-	3	2	2	7	<u>71</u>	4
5 years or more.....	22	-	-	-	-	-	-	-	-	-	2	1	1	<u>18</u>
25 years old and over.....	11,780	565	207	905	1,518	689	858	678	3,829	497	548	235	687	564
Elementary: 0 to 4 years.....	539	<u>377</u>	54	51	25	6	5	9	7	3	-	-	1	1
5 years.....	198	48	<u>68</u>	49	12	2	4	1	8	-	1	2	-	3
6 and 7 years.....	827	62	<u>56</u>	<u>453</u>	173	25	16	10	28	-	-	1	-	3
8 years.....	1,543	33	11	241	<u>964</u>	136	64	16	67	5	5	-	1	-
High school: 1 year.....	607	9	5	35	131	<u>279</u>	84	30	24	5	4	-	1	-
2 years.....	810	6	1	24	61	123	<u>394</u>	116	74	4	3	-	2	2
3 years.....	557	4	4	9	25	28	134	<u>243</u>	96	8	2	2	2	-
4 years.....	4,134	16	6	32	104	77	139	231	<u>3,245</u>	136	65	35	33	15
College: 1 year.....	441	-	-	2	7	3	4	6	123	<u>226</u>	61	6	2	1
2 years.....	602	1	2	3	4	4	6	4	84	88	<u>347</u>	38	15	6
3 years.....	198	-	-	-	2	1	3	5	17	8	35	<u>99</u>	22	6
4 years.....	802	6	-	4	9	4	5	6	44	11	22	<u>43</u>	<u>553</u>	95
5 years or more.....	522	3	-	2	1	1	-	1	12	3	3	9	55	<u>432</u>
Male														
14 years old and over.....	7,210	307	102	585	963	555	666	551	1,931	304	317	148	392	389
Elementary: 0 to 4 years.....	285	<u>207</u>	20	24	15	5	3	5	4	2	-	-	-	-
5 years.....	112	26	<u>37</u>	30	6	1	4	-	5	-	1	1	-	1
6 and 7 years.....	554	37	<u>28</u>	<u>326</u>	113	19	9	7	13	-	-	-	-	2
8 years.....	979	11	7	144	<u>634</u>	92	40	12	31	4	3	-	1	-
High school: 1 year.....	504	4	1	20	<u>76</u>	<u>280</u>	86	18	13	3	2	-	-	1
2 years.....	591	3	1	15	36	90	<u>350</u>	62	29	-	2	-	2	1
3 years.....	480	-	3	2	15	15	91	<u>294</u>	55	2	1	2	-	-
4 years.....	2,065	10	4	17	53	44	71	138	<u>1,609</u>	63	32	7	11	6
College: 1 year.....	305	-	-	1	5	2	1	7	88	<u>162</u>	35	2	1	1
2 years.....	356	-	1	2	3	3	4	5	49	55	<u>201</u>	22	7	4
3 years.....	146	1	-	-	-	1	2	-	10	7	21	<u>81</u>	19	4
4 years.....	471	5	-	2	6	2	5	3	18	5	16	<u>27</u>	<u>317</u>	65
5 years or more.....	362	3	-	2	1	1	-	-	7	1	3	6	34	<u>304</u>
Female														
14 years old and over.....	8,253	287	118	577	1,041	609	721	608	2,801	382	356	165	388	200
Elementary: 0 to 4 years.....	274	<u>180</u>	35	28	13	1	3	6	5	1	-	-	1	1
5 years.....	96	23	<u>36</u>	22	7	1	-	1	3	-	-	1	-	2
6 and 7 years.....	519	27	<u>33</u>	<u>315</u>	99	13	10	4	16	-	-	1	-	1
8 years.....	1,079	28	5	145	<u>724</u>	94	34	7	38	2	2	-	-	-
High school: 1 year.....	591	8	4	26	90	<u>360</u>	61	19	15	4	2	1	1	-
2 years.....	708	3	-	10	31	<u>77</u>	<u>434</u>	98	49	4	1	-	-	1
3 years.....	516	4	1	8	11	18	88	<u>304</u>	70	7	2	1	2	-
4 years.....	3,012	11	3	19	58	40	83	151	<u>2,421</u>	114	43	31	28	10
College: 1 year.....	343	1	-	1	2	2	4	5	86	<u>188</u>	46	5	2	1
2 years.....	382	1	1	1	1	1	2	3	53	50	<u>228</u>	28	11	2
3 years.....	122	-	-	-	2	-	1	5	10	2	22	<u>68</u>	10	2
4 years.....	429	1	-	2	3	2	1	4	30	8	8	25	<u>311</u>	34
5 years or more.....	182	-	-	-	-	-	-	1	5	2	2	4	22	<u>146</u>
WHITE														
Both Sexes														
14 years old and over.....	14,121	437	180	1,001	1,869	1,026	1,256	1,014	4,458	646	629	301	747	557
Elementary: 0 to 4 years.....	413	<u>279</u>	42	42	25	3	6	6	6	2	-	-	1	1
5 years.....	175	37	<u>60</u>	48	12	2	4	-	7	-	1	2	-	2
6 and 7 years.....	904	48	<u>51</u>	<u>544</u>	191	23	13	10	23	-	-	1	-	-
8 years.....	1,886	29	12	254	<u>1,285</u>	154	61	17	62	6	5	-	1	-
High school: 1 year.....	976	8	4	40	144	<u>579</u>	134	31	23	7	3	1	1	1
2 years.....	1,168	4	-	20	62	149	<u>724</u>	129	72	1	3	-	2	2
3 years.....	874	2	4	7	24	27	155	<u>532</u>	107	8	3	3	2	-
4 years.....	4,796	18	5	36	107	77	142	261	<u>3,828</u>	163	70	35	38	16
College: 1 year.....	612	1	-	2	7	2	4	9	162	<u>338</u>	75	7	3	2
2 years.....	691	1	2	3	2	4	6	8	95	96	<u>405</u>	48	16	5
3 years.....	253	1	-	-	2	1	2	5	16	9	38	<u>145</u>	28	6
4 years.....	858	6	-	3	7	4	5	5	46	13	22	<u>49</u>	<u>604</u>	94
5 years or more.....	515	3	-	2	1	1	-	1	11	3	4	10	51	<u>428</u>

- Represents zero.

Table 24. Years of School Completed for Persons 14 Years Old and Over by Age, Race, and Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total	Census classification												
		Elementary				High school				College				
		0 to 4 years	5 years	6 and 7 years	8 years	1 year	2 years	3 years	4 years	1 year	2 years	3 years	4 years	5 years or more
WHITE--Continued														
Male														
14 years old and over.....	6,607	215	86	506	902	487	602	491	1,829	290	302	146	380	371
Elementary: 0 to 4 years.....	203	<u>141</u>	16	20	15	2	3	2	3	1	-	-	-	-
5 years.....	94	19	<u>31</u>	26	6	1	4	-	4	-	1	1	-	1
6 and 7 years.....	471	27	<u>24</u>	<u>280</u>	104	14	4	7	11	-	-	-	-	-
8 years.....	896	7	7	128	600	77	32	11	26	4	3	-	1	-
High school: 1 year.....	451	2	-	17	69	<u>253</u>	79	15	11	3	1	-	-	1
2 years.....	526	1	-	10	32	78	<u>320</u>	52	28	-	2	-	2	1
3 years.....	427	-	3	1	13	13	82	263	47	2	1	2	-	-
4 years.....	1,964	9	4	17	50	41	67	128	<u>1,535</u>	57	32	7	11	6
College: 1 year.....	294	-	-	1	5	1	1	6	83	<u>159</u>	34	2	1	1
2 years.....	338	-	1	2	2	3	4	5	49	<u>51</u>	<u>190</u>	22	6	3
3 years.....	142	1	-	-	-	1	2	-	8	7	20	<u>81</u>	18	4
4 years.....	453	5	-	2	5	2	4	2	18	5	15	25	<u>308</u>	62
5 years or more.....	348	3	-	2	1	1	-	-	6	1	3	6	33	<u>292</u>
Female														
14 years old and over.....	7,514	222	94	495	967	539	654	523	2,629	356	327	155	367	186
Elementary: 0 to 4 years.....	210	<u>138</u>	26	22	10	1	3	4	3	1	-	-	1	1
5 years.....	81	18	<u>29</u>	22	6	1	-	-	3	-	-	1	-	1
6 and 7 years.....	433	21	<u>27</u>	<u>264</u>	87	9	9	3	12	-	-	1	-	-
8 years.....	990	22	5	126	685	77	29	6	36	2	2	-	-	-
High school: 1 year.....	525	6	4	23	75	<u>326</u>	55	16	12	4	2	1	1	-
2 years.....	642	3	-	10	30	71	<u>404</u>	77	44	1	1	-	-	1
3 years.....	447	2	1	6	11	14	73	<u>269</u>	60	6	2	1	2	-
4 years.....	2,832	9	1	19	57	36	75	133	<u>2,293</u>	106	38	28	27	10
College: 1 year.....	318	1	-	1	2	1	3	3	79	<u>179</u>	41	5	2	1
2 years.....	353	1	1	1	-	1	2	3	46	45	<u>215</u>	26	10	2
3 years.....	111	-	-	-	2	-	-	5	8	2	18	<u>64</u>	10	2
4 years.....	405	1	-	1	2	2	1	3	28	8	7	24	<u>296</u>	32
5 years or more.....	167	-	-	-	-	-	-	1	5	2	1	4	18	<u>136</u>
NEGRO														
Both Sexes														
14 years old and over.....	1,209	148	38	156	125	127	117	133	247	35	29	9	21	24
Elementary: 0 to 4 years.....	138	<u>105</u>	12	9	1	3	-	5	2	1	-	-	-	-
5 years.....	33	12	<u>13</u>	4	1	-	-	1	1	-	-	-	-	1
6 and 7 years.....	159	13	10	<u>94</u>	18	9	6	1	5	-	-	-	-	3
8 years.....	165	8	1	<u>35</u>	<u>72</u>	30	10	2	7	-	-	-	-	-
High school: 1 year.....	107	4	-	6	20	<u>56</u>	11	5	5	-	-	-	-	-
2 years.....	122	2	-	5	5	17	<u>55</u>	30	6	2	-	-	-	-
3 years.....	113	2	-	3	2	6	24	<u>58</u>	17	1	-	-	-	-
4 years.....	248	2	2	-	3	4	9	27	<u>181</u>	11	5	3	1	-
College: 1 year.....	30	-	-	-	-	2	-	3	10	<u>11</u>	4	-	-	-
2 years.....	35	-	-	-	2	-	-	-	7	9	<u>13</u>	2	1	1
3 years.....	10	-	-	-	-	-	1	-	3	-	4	<u>2</u>	-	-
4 years.....	28	-	-	-	1	-	1	1	2	-	2	<u>2</u>	<u>15</u>	4
5 years or more.....	21	-	-	-	-	-	-	-	1	-	1	-	4	<u>15</u>
Male														
14 years old and over.....	534	87	15	77	57	63	54	55	89	12	8	1	5	11
Elementary: 0 to 4 years.....	80	<u>65</u>	4	3	-	3	-	3	1	1	-	-	-	-
5 years.....	18	7	<u>6</u>	4	-	-	-	-	1	-	-	-	-	-
6 and 7 years.....	78	8	4	<u>45</u>	7	5	-	-	2	-	-	-	-	2
8 years.....	77	3	-	16	<u>33</u>	14	5	1	5	-	-	-	-	-
High school: 1 year.....	48	2	1	3	7	<u>25</u>	5	3	2	-	-	-	-	-
2 years.....	60	2	-	5	4	12	<u>26</u>	10	1	-	-	-	-	-
3 years.....	49	-	-	1	2	2	9	<u>28</u>	7	-	-	-	-	-
4 years.....	83	-	-	-	2	1	3	9	<u>64</u>	4	-	-	-	-
College: 1 year.....	9	-	-	-	-	1	-	1	4	<u>3</u>	-	-	-	-
2 years.....	13	-	-	-	1	-	-	-	-	4	<u>7</u>	-	-	1
3 years.....	1	-	-	-	-	-	-	-	1	-	-	-	-	-
4 years.....	10	-	-	-	1	-	1	-	-	-	1	<u>1</u>	4	2
5 years or more.....	8	-	-	-	-	-	-	-	1	-	-	-	1	<u>6</u>
Female														
14 years old and over.....	674	61	23	79	68	64	63	78	158	23	21	8	15	13
Elementary: 0 to 4 years.....	58	<u>40</u>	8	6	1	-	-	2	1	-	-	-	-	-
5 years.....	15	5	<u>7</u>	-	1	-	-	1	-	-	-	-	-	1
6 and 7 years.....	81	5	6	<u>49</u>	11	4	1	1	3	-	-	-	-	1
8 years.....	87	5	-	19	<u>39</u>	16	5	1	2	-	-	-	-	-
High school: 1 year.....	60	2	-	3	13	<u>31</u>	6	2	3	-	-	-	-	-
2 years.....	62	-	-	-	1	5	<u>29</u>	20	5	2	-	-	-	-
3 years.....	64	2	-	2	-	4	15	<u>30</u>	10	1	-	-	-	-
4 years.....	165	2	2	-	1	3	6	18	<u>117</u>	7	5	3	1	-
College: 1 year.....	21	-	-	-	-	1	-	2	6	<u>8</u>	4	-	-	-
2 years.....	21	-	-	-	1	-	-	-	7	5	<u>6</u>	2	-	-
3 years.....	9	-	-	-	-	-	1	-	2	-	4	<u>2</u>	-	-
4 years.....	18	-	-	-	-	-	-	1	2	-	1	1	<u>11</u>	2
5 years or more.....	13	-	-	-	-	-	-	-	-	-	1	-	3	<u>9</u>

- Represents zero.

Table 25. Indexes—Years of School Completed by Age, Race, and Sex

(See text for explanation of indexes)

Age, sex, race, and years of school completed	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Age, sex, race, and years of school completed	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
TOTAL						TOTAL--Continued					
Both Sexes, 14 Years Old and Over						Male, 14 Years Old and Over					
L-fold index.....	37	36.8 to 38.6	(X)	(X)	(X)	L-fold index.....	38	37.2 to 39.8	(X)	(X)	(X)
Elementary: 0 to 4 years.	34	30.8 to 37.8	3.6	*0.2	0.0 to 0.5	Elementary: 0 to 4 years.	31	27.0 to 36.4	4.0	*0.3	-0.1 to 0.7
5 years.....	67	59.3 to 75.3	1.4	*0.1	-0.1 to 0.3	5 years.....	66	56.1 to 78.6	1.6	*-0.1	-0.5 to 0.2
6 or 7 years.	46	43.1 to 49.0	6.9	0.6	0.2 to 1.0	6 or 7 years.	46	42.4 to 50.8	7.7	*0.4	-0.2 to 1.0
8 years.....	38	36.1 to 40.3	13.3	*-0.4	-0.8 to 0.1	8 years.....	40	37.1 to 43.3	13.6	*-0.2	-0.9 to 0.5
High school: 1 year.....	47	43.8 to 49.8	7.1	*0.4	0.0 to 0.8	High school: 1 year.....	51	46.5 to 55.6	7.0	0.7	0.1 to 1.3
2 years.....	46	42.9 to 48.4	8.4	0.6	0.1 to 1.0	2 years.....	49	44.6 to 52.8	8.2	1.0	0.4 to 1.7
3 years.....	48	44.8 to 51.0	6.4	1.1	0.7 to 1.5	3 years.....	46	42.1 to 50.9	6.7	1.0	0.4 to 1.6
4 years.....	26	25.0 to 27.3	32.8	-2.2	-2.8 to -1.7	4 years.....	27	25.2 to 28.8	28.6	-1.9	-2.6 to -1.1
College: 1 year.....	50	45.8 to 53.7	4.2	*0.3	-0.1 to 0.6	College: 1 year.....	49	43.4 to 55.0	4.2	*0.0	-0.5 to 0.5
2 years.....	41	37.7 to 44.7	4.8	-0.4	-0.7 to -0.1	2 years.....	42	37.4 to 47.7	4.9	-0.5	-1.0 to -0.1
3 years.....	50	44.1 to 55.9	1.7	0.3	0.1 to 0.5	3 years.....	49	38.5 to 54.5	2.0	*0.0	-0.3 to 0.4
4 years.....	27	24.2 to 29.4	5.8	-0.8	-1.0 to -0.5	4 years.....	28	24.7 to 32.2	6.5	-1.1	-1.5 to -0.7
5 years or more	21	18.7 to 24.3	3.5	0.3	0.1 to 0.5	5 years or more	20	17.0 to 23.7	5.0	*0.4	0.0 to 0.7
Both Sexes, 14 to 17 Years Old						Female, 14 Years Old and Over					
L-fold index.....	23	21.2 to 26.0	(X)	(X)	(X)	L-fold index.....	37	35.9 to 38.3	(X)	(X)	(X)
Elementary: 0 to 4 years.	53	27.6 to 100.0	0.4	*0.2	-0.2 to 0.5	Elementary: 0 to 4 years.	37	32.2 to 42.7	3.3	*0.2	-0.2 to 0.5
5 years.....	41	19.8 to 86.6	0.4	*0.2	-0.2 to 0.5	5 years.....	67	56.8 to 79.5	1.1	*0.3	0.0 to 0.6
6 or 7 years.	27	21.8 to 32.4	12.3	*0.6	-0.5 to 1.8	6 or 7 years.	46	41.5 to 50.0	6.3	0.7	0.2 to 1.2
8 years.....	24	20.5 to 28.1	27.7	-2.1	-3.6 to -0.6	8 years.....	36	33.7 to 39.3	13.1	*-0.5	-1.1 to 0.2
High school: 1 year.....	26	22.6 to 30.9	23.9	*-0.5	-2.0 to 1.0	High school: 1 year.....	43	39.4 to 47.3	7.2	*0.2	-0.3 to 0.8
2 years.....	20	16.6 to 23.8	22.1	*1.0	-0.2 to 2.3	2 years.....	43	39.5 to 46.8	8.6	*0.2	-0.4 to 0.7
3 years.....	15	11.3 to 19.2	12.5	*0.8	-0.1 to 1.6	3 years.....	49	45.1 to 53.8	6.3	1.1	0.6 to 1.7
4 years.....	77	44.4 to 100.0	0.6	*-0.3	-0.7 to 0.1	4 years.....	26	24.3 to 27.4	36.5	-2.6	-3.3 to -1.8
College: 1 year.....	(S)	(S)	0.1	(S)	(S)	College: 1 year.....	50	45.2 to 56.0	4.2	*0.5	0.0 to 0.9
2 years.....	(S)	(S)	0.1	(S)	(S)	2 years.....	40	35.5 to 45.0	4.6	*-0.3	-0.7 to 0.1
3 years.....	(S)	(S)	(S)	(S)	(S)	3 years.....	54	45.5 to 63.0	1.5	0.5	0.2 to 0.8
4 years.....	(S)	(S)	(S)	(S)	(S)	4 years.....	25	21.8 to 23.0	5.2	-0.5	-0.8 to -0.2
5 years or more	(S)	(S)	(S)	(S)	(S)	5 years or more	24	19.5 to 29.8	2.2	*0.2	0.0 to 0.5
Both Sexes, 18 to 21 Years Old						WHITE					
L-fold index.....	36	32.4 to 39.7	(X)	(X)	(X)	Both Sexes, 14 Years Old and Over					
Elementary: 0 to 4 years.	63	33.8 to 100.0	0.5	*0.4	-0.2 to 1.0	L-fold index.....	37	35.8 to 37.6	(X)	(X)	(X)
5 years.....	(S)	(S)	0.3	(S)	(S)	Elementary: 0 to 4 years.	35	31.5 to 39.8	2.9	*0.2	-0.1 to 0.4
6 or 7 years.	51	29.9 to 85.9	1.2	*0.2	-0.5 to 0.9	5 years.....	67	58.9 to 76.4	1.2	*0.0	-0.2 to 0.3
8 years.....	85	58.9 to 100.0	1.5	*0.4	-0.7 to 1.4	6 or 7 years.	46	42.9 to 49.3	6.4	0.7	0.3 to 1.9
High school: 1 year.....	61	46.2 to 80.7	4.1	*-0.3	-1.6 to 1.0	8 years.....	36	34.3 to 38.6	13.4	-0.1	-0.6 to -0.4
2 years.....	51	40.4 to 64.0	7.2	*0.1	-1.5 to 1.7	High school: 1 year.....	45	42.4 to 48.6	6.9	*0.4	-0.1 to 0.9
3 years.....	33	27.5 to 40.4	16.7	2.2	0.3 to 4.0	2 years.....	44	41.3 to 47.0	8.4	0.6	0.2 to 1.1
4 years.....	25	21.6 to 29.7	47.3	-2.3	-4.4 to -0.1	3 years.....	47	43.6 to 50.1	6.1	1.0	0.6 to 1.4
College: 1 year.....	35	27.8 to 43.7	11.8	*-1.0	-2.6 to 0.6	4 years.....	26	24.5 to 26.9	34.0	-2.4	-3.0 to -1.8
2 years.....	38	28.7 to 50.7	6.0	*0.5	-0.8 to 1.7	College: 1 year.....	48	44.6 to 52.6	4.3	*0.2	-0.1 to 0.6
3 years.....	23	13.3 to 38.2	2.8	*0.2	-0.5 to 0.8	2 years.....	41	37.1 to 44.3	4.9	-0.4	-0.8 to -0.1
4 years.....	43	19.9 to 95.5	0.7	*-0.2	-0.7 to 0.3	3 years.....	49	43.0 to 55.0	1.8	0.3	0.1 to 0.6
5 years or more						4 years.....	26	23.7 to 29.0	6.1	-0.8	-1.1 to -0.5
Both Sexes, 22 to 24 Years Old						5 years or more	21	18.3 to 24.0	3.7	0.3	0.1 to 0.5
L-fold index.....	38	33.7 to 42.0	(X)	(X)	(X)	Male, 14 Years Old and Over					
Elementary: 0 to 4 years.	63	33.9 to 100.0	0.8	*0.2	-0.5 to 1.0	L-fold index.....	38	36.4 to 39.1	(X)	(X)	(X)
5 years.....	(S)	(S)	(S)	(S)	(S)	Elementary: 0 to 4 years.	34	28.3 to 39.9	3.1	*0.2	-0.2 to 0.5
6 or 7 years.	31	17.4 to 54.3	2.5	*-0.2	-1.1 to 0.6	5 years.....	66	55.3 to 79.9	1.4	*-0.1	-0.5 to 0.2
8 years.....	48	31.1 to 73.9	2.5	*0.4	-0.8 to 1.5	6 or 7 years.	46	41.8 to 50.8	7.1	*0.5	-0.1 to 1.2
High school: 1 year.....	44	29.5 to 65.3	3.5	*-0.1	-1.3 to 1.1	8 years.....	39	35.5 to 41.8	13.6	*0.1	-0.7 to 0.8
2 years.....	57	42.0 to 77.1	3.4	2.5	0.9 to 4.0	High school: 1 year.....	50	45.0 to 54.6	6.8	*0.5	-0.1 to 1.2
3 years.....	58	43.3 to 78.5	4.5	*0.6	-1.0 to 2.2	2 years.....	47	43.2 to 51.8	8.0	1.1	0.5 to 1.8
4 years.....	29	24.8 to 34.5	48.1	*-1.2	-3.8 to 1.5	3 years.....	46	41.5 to 50.8	6.5	1.0	0.4 to 1.6
College: 1 year.....	52	40.5 to 65.7	8.9	*-0.9	-2.9 to 1.0	4 years.....	27	24.9 to 28.7	29.7	-2.0	-2.9 to -1.2
2 years.....	41	30.8 to 55.0	8.1	-1.8	-3.4 to -0.1	College: 1 year.....	48	42.2 to 53.9	4.5	*-0.1	-0.6 to 0.4
3 years.....	42	29.6 to 59.1	4.6	*0.6	-0.8 to 2.0	2 years.....	43	37.7 to 48.3	5.1	-0.5	-1.0 to -0.1
4 years.....	22	15.8 to 30.9	10.6	*-0.4	-1.8 to 1.1	3 years.....	45	37.4 to 53.4	2.2	*0.1	-0.3 to 0.4
5 years or more	22	12.0 to 41.6	2.6	*0.2	-0.5 to 1.0	4 years.....	28	24.3 to 31.8	6.9	-1.1	-1.6 to -0.7
Both Sexes, 25 Years Old and Over						5 years or more	20	16.7 to 23.6	5.3	*0.4	0.0 to 0.7
L-fold index.....	41	40.4 to 42.5	(X)	(X)	(X)						
Elementary: 0 to 4 years.	33	29.9 to 37.0	4.6	*0.2	-0.1 to 0.5						
5 years.....	68	59.8 to 76.3	1.7	*0.1	-0.2 to 0.4						
6 or 7 years.	51	48.0 to 55.2	7.0	0.7	0.2 to 1.2						
8 years.....	43	40.1 to 45.1	13.1	*-0.2	-0.8 to 0.4						
High school: 1 year.....	60	56.0 to 64.9	5.2	0.7	0.2 to 1.2						
2 years.....	57	53.1 to 60.7	6.9	*0.4	-0.1 to 0.9						
3 years.....	64	59.5 to 68.8	4.7	1.0	0.6 to 1.5						
4 years.....	28	26.6 to 29.3	35.1	-2.6	-3.2 to -1.9						
College: 1 year.....	54	49.3 to 59.1	3.7	0.5	0.1 to 0.9						
2 years.....	42	38.0 to 45.8	5.1	-0.5	-0.8 to -0.1						
3 years.....	55	48.5 to 63.0	1.7	0.3	0.1 to 0.6						
4 years.....	27	24.8 to 30.4	6.8	-1.0	-1.3 to -0.6						
5 years or more	21	18.7 to 24.5	4.4	0.4	0.1 to 0.6						

See footnotes at end of table.

Table 25. Indexes—Years of School Completed by Age, Race, and Sex—Continued

(See text for explanation of indexes)

Age, sex, race, and years of school completed	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Age, sex, race, and years of school completed	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
WHITE--Continued						NEGRO--Continued					
Female, 14 Years Old and Over						Male, 14 Years Old and Over					
L-fold index.....	36	34.6 to 37.2	(X)	(X)	(X)	L-fold index.....	47	42.8 to 52.5	(X)	(X)	(X)
Elementary: 0 to 4 years.....	37	31.7 to 43.6	2.8	*0.9	-0.2 to 0.5	Elementary: 0 to 4 years.....	26	18.9 to 36.4	15.0	*1.3	-1.0 to 3.6
5 years.....	68	56.2 to 81.4	1.1	*0.2	-0.1 to 0.5	5 years.....	66	42.6 to 100.0	3.4	*-0.6	-2.3 to 1.2
6 or 7 years.....	46	41.6 to 50.8	5.8	0.8	0.3 to 1.4	6 or 7 years.....	49	39.2 to 62.0	14.6	*-0.2	-3.2 to 2.9
8 years.....	34	31.8 to 37.5	13.2	*-0.3	-1.0 to 0.3	8 years.....	58	46.4 to 72.7	14.4	-3.8	-6.9 to -0.6
High school: 1 year.....	42	37.8 to 46.0	7.0	*0.2	-0.4 to 0.7	High school: 1 year.....	61	48.5 to 78.0	9.0	*2.8	-0.1 to 5.8
2 years.....	41	37.6 to 45.1	8.5	*0.2	-0.4 to 0.8	2 years.....	61	48.3 to 77.4	11.2	*-1.1	-4.1 to 1.9
3 years.....	48	43.2 to 52.4	6.0	1.0	0.5 to 1.6	3 years.....	51	38.3 to 68.2	9.2	*1.1	-1.5 to 3.8
4 years.....	25	23.6 to 26.8	37.7	-2.7	-3.5 to -1.9	4 years.....	30	22.6 to 41.2	15.5	*1.1	-1.4 to 3.6
College: 1 year.....	49	43.9 to 54.9	4.2	*0.5	0.0 to 1.0	College: 1 year.....	73	43.7 to 100.0	1.7	*0.6	-0.9 to 2.1
2 years.....	39	33.9 to 43.7	4.7	*-0.4	-0.8 to 0.1	2 years.....	34	16.2 to 71.1	2.4	*-0.9	-2.0 to 0.1
3 years.....	53	44.5 to 62.6	1.5	0.6	0.3 to 0.9	3 years.....	(S)	(S)	0.2	(S)	(S)
4 years.....	25	21.2 to -28.5	5.4	-0.5	-0.9 to -0.2	4 years.....	47	22.6 to 99.0	1.9	*-0.9	-2.0 to 0.1
5 years or more	24	18.8 to 29.3	2.2	*0.3	0.0 to 0.5	5 years or more	37	17.9 to 78.5	1.5	*0.6	-0.5 to 1.6
NEGRO						Female, 14 Years Old and Over					
Both Sexes, 14 Years Old and Over						L-fold index.....					
L-fold index.....	49	45.7 to 52.1	(X)	(X)	(X)	L-fold index.....	50	46.1 to 54.9	(X)	(X)	(X)
Elementary: 0 to 4 years.....	30	24.0 to 37.9	11.4	*0.8	-0.6 to 2.3	Elementary: 0 to 4 years.....	36	26.1 to 49.5	8.6	*0.5	-1.4 to 2.3
5 years.....	65	48.5 to 87.9	2.7	*0.4	-0.7 to 1.5	5 years.....	65	43.3 to 97.4	2.2	*1.2	-0.3 to 2.7
6 or 7 years.....	46	39.3 to 54.9	13.2	*-0.3	-2.1 to 1.6	6 or 7 years.....	44	34.1 to 56.6	12.0	*-0.3	-2.7 to 2.1
8 years.....	57	49.0 to 66.7	13.7	-3.3	-5.3 to -1.3	8 years.....	56	45.5 to 69.5	12.9	-2.8	-5.4 to -0.2
High school: 1 year.....	58	48.7 to 68.5	8.9	*1.7	-0.2 to 3.5	High school: 1 year.....	55	42.7 to 70.9	8.9	*0.6	-1.8 to 3.0
2 years.....	60	50.9 to 70.8	10.1	*-0.4	-2.3 to 1.5	2 years.....	59	46.3 to 75.4	9.2	*0.2	-2.3 to 2.6
3 years.....	59	50.0 to 69.4	9.4	*1.7	-0.2 to 3.6	3 years.....	64	52.7 to 79.4	9.5	*2.1	-0.6 to 4.9
4 years.....	34	28.8 to 39.8	20.5	*-0.1	-2.0 to 1.8	4 years.....	36	29.9 to 44.2	24.5	*-1.0	-3.9 to 1.8
College: 1 year.....	68	50.2 to 92.1	2.5	*0.4	-0.7 to 1.5	College: 1 year.....	66	45.2 to 95.8	3.1	*0.3	-1.3 to 1.9
2 years.....	61	44.1 to 84.2	2.9	*-0.5	-1.5 to 0.5	2 years.....	74	51.3 to 100.0	3.1	*0.0	-1.7 to 1.7
3 years.....	80	47.7 to 100.0	0.8	*-0.1	-0.7 to 0.6	3 years.....	77	44.8 to 100.0	1.3	*-0.2	-1.3 to 1.0
4 years.....	40	25.1 to 62.3	2.3	*-0.6	-1.3 to 0.2	4 years.....	34	18.9 to 61.9	2.7	*-0.5	-1.5 to 0.6
5 years or more	34	20.4 to 56.6	1.7	*0.3	-0.4 to 0.9	5 years or more	31	15.7 to 62.8	1.9	*0.0	-0.9 to 0.9

*Not different from zero at 95-percent confidence interval.

S Does not meet publication standards.

X Not applicable.

Source: Table 24.

Table 26. Veteran Status and Period of Service for Civilian Males 16 Years Old and Over

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 15-percent sample households)

CPS classification	Total	Census classification						
		Veteran						Nonveteran
		Total	Vietnam conflict	Korean conflict	World War II	World War I	Other service	
Total.....	4,972	2,234	326	455	1,016	121	316	2,738
Veteran.....	2,157	<u>2,079</u>	294	428	969	104	284	78
Vietnam conflict.....	285	<u>273</u>	<u>241</u>	5	7	-	20	12
Korean conflict.....	405	395	6	<u>353</u>	20	-	16	10
World War II.....	1,005	970	3	28	<u>921</u>	8	10	35
World War I.....	108	102	-	-	6	<u>94</u>	2	6
Other service.....	354	339	44	42	15	2	<u>236</u>	15
Nonveteran.....	2,815	155	32	27	47	17	32	2,660

- Represents zero.

Table 27. Veteran Status and Age for Male Veterans 16 Years Old and Over

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 15-percent sample households)

CPS classification	Total	Census classification							
		Veteran							Non- veteran
		Total	16 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 years and over	
Total, all ages.....	4,972	2,234	134	454	622	657	199	168	2,738
Veteran.....	2,157	2,079	120	406	589	634	183	147	78
16 to 24 years.....	127	118	113	5	-	-	-	-	9
25 to 34 years.....	429	417	4	392	16	5	-	-	12
35 to 44 years.....	605	587	2	9	562	13	1	-	18
45 to 54 years.....	650	632	1	-	11	611	8	1	18
55 to 64 years.....	189	181	-	-	-	4	174	3	8
65 years and over.....	157	144	-	-	-	1	-	143	13
Nonveteran.....	2,815	155	14	48	33	23	16	21	2,660

- Represents zero.

Table 28. Period of Service for Male Veterans 16 Years Old and Over by Age and Race

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 15-percent sample households)

CPS classification	Total	Census classification					CPS classification	Total	Census classification				
		Vietnam conflict	Korean conflict	World War II	World War I	Other service			Vietnam conflict	Korean conflict	World War II	World War I	Other service
Total, all ages...	2,079	294	428	969	104	284	Other service.....	339	44	42	15	2	236
Vietnam conflict.....	273	241	5	7	-	20	16 to 24 years.....	9	9	-	-	-	-
16 to 24 years.....	109	109	-	-	-	-	25 to 34 years.....	240	35	23	3	-	179
25 to 34 years.....	140	118	1	3	-	18	35 to 44 years.....	61	-	13	5	-	43
35 to 44 years.....	19	12	4	1	-	2	45 to 54 years.....	10	-	4	3	-	3
45 to 54 years.....	3	1	-	2	-	-	55 to 64 years.....	10	-	1	3	-	6
55 years and over.....	2	1	-	1	-	-	65 years and over....	9	-	1	1	2	5
Korean conflict.....	395	6	353	20	-	16	White.....	1,964	279	399	912	98	276
16 to 34 years.....	37	1	31	1	-	4	Vietnam conflict.....	260	230	4	6	-	20
35 to 44 years.....	324	5	295	12	-	12	Korean conflict.....	374	6	334	18	-	16
45 to 54 years.....	27	-	21	6	-	-	World War II.....	908	2	23	867	6	10
55 to 64 years.....	6	-	5	1	-	-	World War I.....	99	-	-	6	91	2
65 years and over.....	1	-	1	-	-	-	Other service.....	323	41	38	15	1	228
World War II.....	970	3	28	921	8	10	Negro.....	105	14	28	52	5	6
16 to 44 years.....	183	1	12	167	-	3	Vietnam conflict.....	12	10	1	1	-	-
45 to 54 years.....	592	2	14	575	-	1	Korean conflict.....	20	-	18	2	-	-
55 to 64 years.....	164	-	2	158	1	3	World War II.....	57	1	5	49	2	-
65 years and over.....	31	-	-	21	7	3	World War I.....	3	-	-	-	3	-
World War I.....	102	-	-	6	94	2	Other service.....	13	3	4	-	-	6
16 to 64 years.....	-	-	-	-	-	-							
65 years and over.....	102	-	-	6	94	2							

- Represents zero.

Table 29. Indexes—Veteran Status and Period of Service

(See text for explanation of indexes)

Veteran status and period of service	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
L-fold index.....	15	13.6 to 16.3	(X)	(X)	(X)
Veteran:					
Vietnam conflict.....	22	18.9 to 26.8	5.7	0.8	0.4 to 1.3
Korean conflict.....	20	16.7 to 23.0	8.2	1.0	0.5 to 1.5
World War II.....	11	9.6 to 12.9	20.2	*0.2	-0.3 to 0.8
World War I.....	18	13.4 to 25.0	2.2	*0.3	0.0 to 0.5
Other service.....	32	27.5 to 36.5	7.1	-0.8	-1.3 to -0.2
Nonveteran.....	10	8.3 to 10.8	56.6	-1.6	-2.2 to -0.9

*Not different from zero at the 95-percent confidence level.

X Not applicable.

Source: Table 26.

Table 30. Indexes—Veteran Status and Age

(See text for explanation of indexes)

Period of service and age	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
L-fold index.....	10	8.8 to 11.1	(X)	(X)	(X)
VETERAN					
16 to 25 years old.....	14	9.8 to 19.3	2.6	*0.1	-0.1 to 0.4
25 to 34 years old.....	12	10.1 to 15.0	8.6	0.5	0.1 to 0.9
35 to 44 years old.....	10	7.9 to 11.7	12.2	*0.3	-0.1 to 0.8
45 to 54 years old.....	7	6.0 to 9.3	13.1	*0.1	-0.2 to 0.5
55 to 64 years old.....	11	7.8 to 14.7	3.8	*0.2	-0.1 to 0.5
65 years old and over.....	12	9.0 to 17.1	3.2	*0.2	0.0 to 0.5
NONVETERAN					
16 years old and over.....	10	8.3 to 10.8	56.6	-1.6	-2.2 to -0.9

*Not different from zero at the 95-percent confidence level.

X Not applicable.

Source: Table 27.

Table 31. Indexes—Period of Service of Male Veterans by Race

(See text for explanation of indexes)

Period of service by race	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
WHITE					
L-fold index.....	16	13.7 to 17.7	(X)	(X)	(X)
Vietnam conflict.....	17	13.6 to 21.3	13.2	1.0	0.1 to 1.9
Korean conflict.....	17	13.9 to 20.5	19.0	1.3	0.2 to 2.3
World War II.....	9	7.1 to 10.9	46.2	*0.2	-0.8 to 1.2
World War I.....	8	4.8 to 13.4	5.0	*-0.1	-0.5 to 0.4
Other service.....	28	23.8 to 33.3	16.5	-2.4	-3.6 to -1.2
NEGRO					
L-fold index.....	28	19.0 to 41.9	(X)	(X)	(X)
Vietnam conflict.....	26	11.9 to 58.3	11.4	*1.9	-3.1 to 6.9
Korean conflict.....	32	20.0 to 55.5	19.1	7.6	0.8 to 14.5
World War II.....	21	12.8 to 36.7	54.3	*-4.8	-11.4 to 1.8
World War I.....	(S)	(S)	2.9	(S)	(S)
Other service.....	40	19.1 to 83.7	12.4	-6.7	-14.0 to -1.3

*Not different from zero at 95-percent confidence level.

S Does not meet publication standards.

X Not applicable.

Source: Table 28.

**Table 32. Employment Status of the Civilian Population 14 Years Old and Over
by Age, Race, and Sex**

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total				White ¹				Negro ¹			
	Total				Total				Total			
	Census classification				Census classification				Census classification			
	Total	Employed	Unem- ployed	Not in labor force	Total	Employed	Unem- ployed	Not in labor force	Total	Employed	Unem- ployed	Not in labor force
BOTH SEXES												
14 years old and over....	15,401	8,708	8,326	332	7,994	382	6,693	14,063	7,930	7,604	294	6,133
Civilian labor force.....	8,920	8,210	7,941	301	7,640	269	710	8,133	7,503	7,274	229	630
Employed.....	8,530	7,949	7,836	297	7,539	113	581	7,810	7,287	7,186	269	523
Agriculture.....	384	291	284	253	31	7	93	351	266	259	231	85
Nonagricultural industries.....	8,146	7,658	7,552	44	7,508	106	488	7,459	7,021	6,927	38	438
Unemployed.....	390	261	261	105	4	101	129	323	216	88	2	107
Not in labor force.....	6,481	498	385	31	354	113	5,983	5,930	427	330	23	5,503
14 and 15 years old.....	870	92	82	10	72	10	778	785	88	79	10	697
Civilian labor force.....	150	61	56	5	51	5	89	145	61	56	5	84
Employed.....	129	59	56	5	51	5	70	128	59	56	5	69
Agriculture.....	12	4	4	4	4	4	8	12	4	4	4	8
Nonagricultural industries.....	117	55	52	1	51	3	62	116	55	52	1	61
Unemployed.....	21	2	2	2	2	2	19	17	2	2	2	15
Not in labor force.....	720	31	26	5	21	5	589	640	27	23	5	613
16 and 17 years old.....	857	286	249	17	232	37	571	765	271	235	17	494
Civilian labor force.....	323	222	202	14	188	20	101	306	209	190	14	97
Employed.....	281	205	194	13	181	11	76	270	195	184	13	75
Agriculture.....	24	14	14	11	3	3	10	24	14	14	11	10
Nonagricultural industries.....	257	191	180	2	178	11	66	246	181	170	2	65
Unemployed.....	42	17	8	1	7	9	25	36	14	6	3	8
Not in labor force.....	534	64	47	3	44	17	470	459	62	45	3	397
18 and 19 years old.....	625	381	350	12	338	31	244	560	311	316	11	305
Civilian labor force.....	380	334	316	11	305	18	46	342	302	289	10	279
Employed.....	341	312	304	11	293	8	29	313	287	280	10	270
Agriculture.....	14	10	9	8	1	1	4	13	9	8	7	1
Nonagricultural industries.....	327	302	295	3	292	7	25	300	278	272	3	269
Unemployed.....	39	22	12	1	12	10	17	29	15	9	6	14
Not in labor force.....	245	47	34	1	33	13	198	218	39	27	1	179
20 to 24 years old.....	1,311	924	859	19	840	65	387	1,179	831	782	17	765
Civilian labor force.....	915	864	818	18	800	46	51	820	781	746	16	730
Employed.....	852	814	794	18	776	20	38	774	742	725	16	709
Agriculture.....	18	16	16	15	1	1	2	14	13	13	13	1
Nonagricultural industries.....	834	798	778	3	775	20	36	760	729	712	3	709
Unemployed.....	63	50	24	2	24	26	18	46	39	21	17	31
Not in labor force.....	396	60	41	1	40	19	336	359	50	36	1	309
25 to 34 years old.....	2,595	1,767	1,707	50	1,657	60	828	2,384	1,608	1,560	44	1,516
Civilian labor force.....	1,775	1,698	1,652	47	1,605	46	77	1,618	1,550	1,514	42	1,472
Employed.....	1,715	1,637	1,637	47	1,590	19	59	1,569	1,516	1,501	42	1,459
Agriculture.....	45	41	41	37	4	3	4	40	37	37	34	3
Nonagricultural industries.....	1,670	1,615	1,596	10	1,586	19	55	1,529	1,479	1,464	8	1,456
Unemployed.....	60	42	15	3	15	27	18	49	34	13	21	13
Not in labor force.....	820	69	55	3	52	14	751	766	58	46	2	708
35 to 44 years old.....	2,568	1,855	1,795	62	1,733	60	713	2,333	1,675	1,623	56	1,567
Civilian labor force.....	1,882	1,801	1,753	60	1,693	48	81	1,701	1,628	1,586	55	1,531
Employed.....	1,820	1,748	1,732	59	1,673	16	72	1,649	1,584	1,570	55	1,515
Agriculture.....	69	58	57	50	7	1	11	66	55	54	6	6
Nonagricultural industries.....	1,751	1,690	1,675	9	1,666	15	61	1,583	1,529	1,516	7	1,509
Unemployed.....	62	53	21	1	20	32	9	52	44	16	1	28
Not in labor force.....	686	54	42	2	40	12	632	632	47	37	1	585

See footnotes at end of table.

Table 32. Employment Status of the Civilian Population 14 Years Old and Over by Age, Race, and Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total										White ¹										Negro ¹													
	Census classification										Census classification										Census classification													
	Civilian labor force					Total					Civilian labor force					Total					Civilian labor force					Total								
	Total	Agri- cul- ture	Nonagri- cultural indus- tries	Unem- ployed	Not in labor force	Total	Total	Agri- cul- ture	Nonagri- cultural indus- tries	Unem- ployed	Not in labor force	Total	Total	Agri- cul- ture	Nonagri- cultural indus- tries	Unem- ployed	Not in labor force	Total	Total	Agri- cul- ture	Nonagri- cultural indus- tries	Unem- ployed	Not in labor force											
BOTH SEXES--Continued																																		
45 to 54 years old.....	2,563	1,834	1,784	71	1,713	50	729	2,360	1,687	1,641	62	1,579	46	673	182	134	130	7	123	4	48													
Civilian labor force.....	1,873	1,780	1,741	67	1,674	39	93	1,722	1,642	1,606	59	1,547	36	80	136	125	122	6	116	3	11													
Employed.....	1,822	1,741	1,724	66	1,658	20	78	1,675	1,608	1,590	58	1,532	18	67	132	123	121	6	115	2	9													
Agriculture.....	78	69	67	59	8	2	9	70	61	59	51	8			6	6	6																	
Nonagricultural industries.....	1,744	1,675	1,657	7	1,650	18	69	1,605	1,547	1,531	7	1,524	16	58	126	117	115																	
Unemployed.....	51	36	17	1	16	19	15	47	34	16	1	15	18	13	4	2	1																	
Not in labor force.....	690	54	43	4	39	11	636	638	45	35	3	32	10	593	46	9	8	1	7		37													
55 to 64 years old.....	1,963	1,225	1,175	54	1,121	50	738	1,800	1,120	1,075	45	1,030	45	680	152	100	96	9	87	4	52													
Civilian labor force.....	1,257	1,171	1,133	46	1,087	38	86	1,148	1,074	1,039	41	998	35	74	104	92	90	5	85	2	12													
Employed.....	1,216	1,141	1,128	46	1,082	13	75	1,110	1,047	1,034	41	993	13	63	102	90	89	5	85															
Agriculture.....	67	52	49	42	7	3	13	59	47	44	37	7			8	5	5																	
Nonagricultural industries.....	1,149	1,089	1,079	4	1,075	10	60	1,051	1,000	990	4	986	10	51	94	85	85																	
Unemployed.....	41	30	5		5	25	11	38	27	5		5	22	11	2	2	2																	
Not in labor force.....	706	54	42	8	34	12	652	652	46	36	4	32	10	606	48	8	6	4	2		40													
65 years old and over.....	2,049	344	325	37	288	19	1,705	1,897	309	293	32	261	16	1,588	138	30	27	3	24	3	108													
Civilian labor force.....	365	279	270	33	237	9	86	331	255	248	29	219	8	75	29	18	17	2	15	1	11													
Employed.....	354	270	267	32	235	3	84	322	249	245	29	217	3	73	27	16	16																	
Agriculture.....	57	27	27	27			30	53	26	26	26				3	3	3																	
Nonagricultural industries.....	297	243	240	5	235	3	54	269	223	220	3	217	3	46	24	16	16	1	15		8													
Unemployed.....	11	9	3	1	2	6	2	9	7	2		2	2	2	2	2	2																	
Not in labor force.....	1,684	65	55	4	51	10	1,619	1,566	53	45	3	42	8	1,513	109	12	10	1	9	2	97													
MALE																																		
14 years old and over....	7,149	5,358	5,148	297	4,851	210	1,791	6,550	4,956	4,771	265	4,506	185	1,594	532	359	335	28	307	24	173													
Civilian labor force.....	5,468	5,191	5,026	280	4,746	165	277	5,059	4,812	4,667	252	4,415	145	247	371	341	322	24	298	19	30													
Employed.....	5,247	5,025	4,934	277	4,677	71	222	4,866	4,669	4,603	250	4,353	66	197	344	319	314	23	291	5	25													
Agriculture.....	333	268	263	237	26	5	65	302	244	239	216	23		5	28	21	21		3		7													
Nonagricultural industries.....	4,914	4,757	4,691	40	4,651	66	157	4,564	4,425	4,364	34	4,330	61	139	316	298	293	5	288	5	18													
Unemployed.....	221	166	72	3	69	94	55	193	143	143	2	62	79	50	27	22	8	1	7	14	5													
Not in labor force.....	1,681	167	122	17	105	45	1,514	1,491	144	104	13	91	40	1,347	161	18	13	4	9	5	143													
14 and 15 years old.....	431	47	41	7	34	6	384	390	46	40	7	33	6	344	38						38													
Civilian labor force.....	70	31	28	3	25	3	39	66	31	28	3	25	3	35	4						4													
Employed.....	54	29	28	3	25	1	25	53	29	28	3	25		1	24	1																		
Agriculture.....	8	2	2	2			6	8	2	2																								
Nonagricultural industries.....	46	27	26	1	25	1	19	45	27	26	1	25		1	18	1																		
Unemployed.....	16	2				2	14	13	2	2			2	1	3																			
Not in labor force.....	361	16	13	4	9	3	345	324	15	12	4	8	3	309	34																			
16 and 17 years old.....	439	167	147	16	131	20	272	385	159	140	16	124	19	226	47	7	6				40													
Civilian labor force.....	189	137	125	14	111	12	52	180	130	119	14	105	11	50	9	7	6				2													
Employed.....	166	127	121	13	108	6	39	160	122	116	13	103	6	38	6	5	5				1													
Agriculture.....	23	14	14	11	11	3	9	23	14	14	11	3		9																				
Nonagricultural industries.....	143	113	107	2	105	6	30	137	108	102	2	100	6	29	6	5	5				1													
Unemployed.....	23	10	4	1	3	3	13	20	8	3	1	2	5	12	3	2	1				1													
Not in labor force.....	250	30	22	2	20	8	220	205	29	21	2	19	8	176	38																			

See footnotes at end of table.

Table 32. Employment Status of the Civilian Population 14 Years Old and Over
by Age, Race, and Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total				White ¹				Negro ¹												
	Total	Census classification				Total	Census classification				Total	Census classification									
		Civilian labor force					Civilian labor force					Civilian labor force									
		Total	Employed				Total	Employed				Total	Employed								
			Agri- cul- ture	Nonagri- cultural indus- tries	Unem- ployed			Agri- cul- ture	Nonagri- cultural indus- tries	Unem- ployed			Agri- cul- ture	Nonagri- cultural indus- tries	Unem- ployed						
Total	Agri- cul- ture					Nonagri- cultural indus- tries					Total					Agri- cul- ture	Nonagri- cultural indus- tries	Total	Agri- cul- ture	Nonagri- cultural indus- tries	
MALE--Continued																					
18 and 19 years old.....	295	200	180	11	169	20	95	267	181	165	10	155	16	86	25	18	14	1	13	4	7
Civilian labor force.....	207	184	170	10	160	14	23	190	168	158	9	149	10	22	17	16	12	1	11	4	1
Employed.....	185	169	152	10	152	7	16	172	157	151	9	142	6	15	13	12	11	1	10	1	1
Agriculture.....	14	9	8	1	1	1	4	13	9	8	7	1	1	4	1	1	1	1	1	1	1
Nonagricultural industries.....	171	159	153	2	151	6	12	159	148	143	2	141	5	11	12	11	10	1	10	1	1
Unemployed.....	22	15	8	-	8	7	7	18	11	7	7	7	4	7	4	4	4	1	1	3	1
Not in labor force.....	88	16	10	1	9	6	72	77	13	7	1	6	6	64	8	2	2	-	2	-	6
20 to 24 years old.....	554	468	433	18	415	35	86	501	426	397	16	381	29	75	45	38	32	2	30	6	7
Civilian labor force.....	463	444	417	17	400	27	19	421	406	383	15	368	23	15	39	35	31	2	29	4	4
Employed.....	426	413	400	17	383	13	13	388	378	367	15	352	11	10	35	32	30	2	28	2	3
Agriculture.....	17	16	16	15	1	-	1	13	13	13	13	-	-	-	4	3	3	2	1	1	1
Nonagricultural industries.....	409	397	384	2	382	13	12	375	365	354	2	352	11	10	31	29	27	-	27	2	2
Unemployed.....	37	31	17	-	17	14	6	33	28	16	4	16	12	5	4	3	1	-	1	2	1
Not in labor force.....	91	24	16	1	15	8	67	80	20	14	1	13	6	60	6	3	1	-	1	2	3
25 to 34 years old.....	1,223	1,189	1,156	43	1,113	33	34	1,139	1,109	1,083	39	1,044	26	30	75	73	66	4	62	7	2
Civilian labor force.....	1,189	1,178	1,149	43	1,106	29	11	1,110	1,100	1,077	39	1,038	23	10	73	72	66	4	62	6	1
Employed.....	1,161	1,152	1,138	43	1,095	14	9	1,087	1,079	1,067	39	1,028	12	8	68	67	65	4	61	2	1
Agriculture.....	37	36	36	33	3	-	1	34	33	33	31	2	1	1	3	3	3	2	1	2	1
Nonagricultural industries.....	1,124	1,116	1,102	10	1,092	14	8	1,053	1,046	1,034	8	1,026	12	7	65	64	62	2	60	2	1
Unemployed.....	28	26	11	-	11	15	2	23	21	10	-	10	11	2	5	5	1	-	4	1	1
Not in labor force.....	34	11	7	-	7	4	23	29	9	6	-	6	3	20	2	1	-	1	1	1	1
35 to 44 years old.....	1,212	1,173	1,143	56	1,087	30	39	1,115	1,080	1,051	51	1,000	29	35	87	83	82	5	77	1	4
Civilian labor force.....	1,180	1,165	1,138	55	1,083	27	15	1,086	1,073	1,047	51	996	26	13	84	82	81	4	77	1	2
Employed.....	1,147	1,135	1,127	55	1,072	8	12	1,056	1,046	1,038	51	987	8	10	81	79	79	4	75	2	2
Agriculture.....	57	54	54	47	7	-	3	54	51	51	45	6	-	3	3	3	3	2	1	-	1
Nonagricultural industries.....	1,090	1,081	1,073	8	1,065	8	9	1,002	995	987	6	981	18	7	78	76	76	2	74	2	2
Unemployed.....	33	30	11	-	11	19	3	30	27	9	-	9	18	3	3	3	2	1	2	1	1
Not in labor force.....	32	8	5	1	4	3	24	29	7	4	-	4	3	22	3	1	1	-	1	4	1
45 to 54 years old.....	1,209	1,138	1,117	63	1,054	21	71	1,115	1,058	1,038	55	983	20	57	82	70	69	6	63	1	12
Civilian labor force.....	1,151	1,108	1,094	61	1,046	17	26	1,071	1,047	1,030	54	976	17	24	70	68	68	6	62	-	2
Employed.....	1,129	1,105	1,094	61	1,034	11	24	1,050	1,028	1,017	53	964	11	22	69	67	67	6	61	-	2
Agriculture.....	65	62	61	59	6	1	3	57	54	53	47	6	6	3	6	6	6	6	6	-	2
Nonagricultural industries.....	1,064	1,043	1,033	6	1,027	10	21	993	974	964	6	958	10	19	63	61	61	-	61	-	2
Unemployed.....	22	20	14	1	13	6	2	21	19	13	1	12	6	2	1	1	1	1	1	-	1
Not in labor force.....	58	13	9	1	8	4	45	44	11	8	1	7	3	33	12	2	1	-	1	1	10
55 to 64 years old.....	924	763	732	47	685	31	161	847	703	675	40	635	28	144	71	55	53	7	46	2	16
Civilian labor force.....	786	744	716	43	673	28	42	723	687	662	38	624	25	36	58	52	50	5	45	2	6
Employed.....	756	720	699	43	669	8	36	696	658	638	34	615	3	8	50	50	50	5	45	2	6
Agriculture.....	58	47	44	39	5	3	11	50	42	39	34	4	5	3	8	5	5	5	5	-	3
Nonagricultural industries.....	698	673	668	4	664	5	25	646	624	619	4	615	5	22	48	48	45	45	45	-	3
Unemployed.....	30	24	4	-	4	20	6	27	21	4	4	4	17	6	2	2	2	-	2	2	-
Not in labor force.....	138	19	16	4	12	3	119	124	16	13	2	11	3	108	13	3	3	2	1	1	10
65 years old and over.....	862	213	199	36	163	14	649	791	194	182	31	151	12	597	62	15	13	3	10	2	47
Civilian labor force.....	233	183	175	33	142	8	50	212	170	163	29	134	7	42	17	9	8	2	6	1	8
Employed.....	223	175	172	32	140	3	48	204	164	161	29	132	3	40	15	7	7	1	6	1	8
Agriculture.....	54	27	27	27	-	-	27	50	26	26	26	-	-	3	3	-	-	-	-	-	3
Nonagricultural industries.....	169	148	145	5	140	3	21	138	135	135	3	132	3	16	12	7	7	1	6	-	5
Unemployed.....	10	8	3	1	2	8	2	8	6	2	2	2	4	2	2	2	2	1	1	1	1
Not in labor force.....	629	30	24	3	21	5	599	579	24	19	2	17	5	555	45	6	6	15	4	1	39

See footnotes at end of table.

**Table 32. Employment Status of the Civilian Population 14 Years Old and Over
by Age, Race, and Sex—Continued**

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total					White ¹					Negro ¹					
	Census classification					Census classification					Census classification					
	Civilian labor force					Civilian labor force					Civilian labor force					
	Total	Employed	Agri- cul- ture	Nonagri- cultural indus- tries	Not in labor force	Total	Employed	Agri- cul- ture	Nonagri- cultural indus- tries	Not in labor force	Total	Employed	Agri- cul- ture	Nonagri- cultural indus- tries	Not in labor force	
FEMALE																
14 years old and over....	8,252	3,350	3,178	35	3,143	4,902	2,974	2,833	29	2,804	141	4,539	347	316	5	327
Civilian labor force.....	3,452	3,019	2,915	21	2,894	433	2,691	2,607	19	2,588	84	383	304	284	1	47
Employed.....	3,283	2,924	2,882	20	2,862	359	2,618	2,583	19	2,564	35	326	282	275	7	30
Agriculture.....	51	23	21	16	5	28	49	22	15	5	2	27	1	1	1	1
Nonagricultural industries.....	3,232	2,901	2,861	4	2,857	40	2,596	2,563	4	2,559	33	299	282	275	7	29
Unemployed.....	169	95	33	1	32	74	130	73	24	24	49	57	39	22	9	17
Not in labor force.....	4,800	331	263	14	249	4,469	283	226	10	216	57	4,156	323	43	4	280
14 and 15 years old.....	439	45	41	3	38	4	394	42	39	36	3	353	41	3	2	38
Civilian labor force.....	80	30	28	2	26	2	50	79	30	26	2	49	1	1	1	1
Employed.....	75	30	28	2	26	2	45	75	30	26	2	45	1	1	1	1
Agriculture.....	4	2	2	2	2	2	4	2	2	2	2	2	1	1	1	1
Nonagricultural industries.....	71	28	26	1	26	2	43	71	28	26	2	43	1	1	1	1
Unemployed.....	5	15	13	1	12	5	4	4	1	1	1	4	1	1	1	1
Not in labor force.....	359	15	13	1	12	344	316	12	11	10	1	304	40	3	2	37
16 and 17 years old.....	418	119	102	1	101	17	299	112	95	94	17	268	34	6	6	28
Civilian labor force.....	134	85	77	1	77	8	126	79	71	71	8	47	7	5	5	2
Employed.....	115	78	73	1	73	5	110	73	68	68	5	37	4	4	4	2
Agriculture.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Nonagricultural industries.....	114	78	73	1	73	5	109	73	68	68	5	36	4	4	4	1
Unemployed.....	19	7	4	1	4	3	16	6	3	3	3	10	3	1	1	2
Not in labor force.....	284	34	25	1	24	9	250	33	24	23	9	221	27	1	1	26
18 and 19 years old.....	330	181	170	1	169	11	149	151	1	150	9	133	34	18	16	16
Civilian labor force.....	173	150	146	1	145	4	152	134	131	130	3	18	19	14	13	5
Employed.....	156	143	142	1	141	1	141	129	1	128	1	11	13	11	11	2
Agriculture.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Nonagricultural industries.....	156	143	142	1	141	1	141	130	129	128	1	11	13	11	11	2
Unemployed.....	17	7	4	1	4	3	10	4	2	2	2	7	6	3	2	3
Not in labor force.....	157	31	24	1	24	7	126	26	20	20	6	115	15	4	3	11
20 to 24 years old.....	757	456	426	1	425	30	678	405	385	384	20	273	70	47	37	23
Civilian labor force.....	452	420	401	1	400	19	399	375	363	362	12	24	49	41	34	8
Employed.....	426	401	394	1	393	7	386	364	358	357	6	22	36	33	32	3
Agriculture.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Nonagricultural industries.....	425	401	394	1	393	7	385	364	358	357	6	21	36	33	32	3
Unemployed.....	26	19	7	1	7	12	13	11	5	5	6	2	13	8	2	5
Not in labor force.....	305	36	25	1	25	11	269	30	22	22	8	249	21	6	3	15
25 to 34 years old.....	1,372	578	551	7	544	27	794	499	477	472	22	746	112	69	64	43
Civilian labor force.....	586	520	503	4	499	17	66	508	437	434	13	58	70	62	58	8
Employed.....	554	504	499	4	495	5	50	482	437	431	3	45	64	59	57	5
Agriculture.....	8	5	5	4	1	3	6	4	4	3	1	2	1	1	1	1
Nonagricultural industries.....	546	499	494	1	494	5	47	476	433	430	3	43	63	59	57	4
Unemployed.....	32	16	4	3	4	16	26	13	3	3	10	13	6	3	1	3
Not in labor force.....	786	58	48	3	45	10	728	737	49	40	38	9	42	7	6	35
35 to 44 years old.....	1,356	682	652	6	646	30	674	595	572	5	567	23	126	80	73	46
Civilian labor force.....	702	636	615	5	610	21	66	615	539	535	16	60	81	76	71	5
Employed.....	673	613	605	4	601	8	60	593	532	528	6	55	74	70	68	2
Agriculture.....	12	4	3	3	1	8	12	4	3	3	1	8	1	1	1	1
Nonagricultural industries.....	661	609	602	1	601	7	52	581	529	528	5	47	74	70	68	4
Unemployed.....	29	23	10	1	9	6	22	17	7	7	10	5	7	6	3	1
Not in labor force.....	654	46	37	1	36	13	603	40	33	32	7	563	45	4	2	41

See footnotes at end of table.

Table 32. Employment Status of the Civilian Population 14 Years Old and Over
by Age, Race, and Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total										White ¹										Negro ¹									
	Total	Census classification					Total	Census classification					Total	Census classification					Total	Census classification					Total	Census classification				
		Civilian labor force						Civilian labor force						Civilian labor force						Civilian labor force										
		Total	Employed	Nonagri- cultural indus- tries	Unem- played	Not in labor force		Total	Employed	Nonagri- cultural indus- tries	Unem- played	Not in labor force		Total	Employed	Nonagri- cultural indus- tries	Unem- played	Not in labor force		Total	Employed	Nonagri- cultural indus- tries	Unem- played	Not in labor force						
FEMALE--Continued																														
45 to 54 years old.....	1,354	696	667	8	659	29	658	1,245	629	603	7	596	26	616	100	64	61	1	60	3	36									
Civilian labor force.....	722	655	633	5	628	22	67	651	595	576	5	571	19	56	66	57	54	-	54	3	9									
Employed.....	693	639	630	5	625	9	54	625	580	573	5	568	7	45	63	56	54	-	54	2	7									
Agriculture.....	13	7	6	1	2	1	6	13	7	6	1	2	1	6	-	-	-	-	-	-	-									
Nonagricultural industries.....	680	632	624	1	623	8	48	612	573	567	1	566	6	39	63	56	54	-	54	2	7									
Unemployed.....	29	16	3	-	3	13	13	26	15	3	-	3	12	11	3	1	-	-	-	1	2									
Not in labor force.....	632	41	34	3	31	7	591	594	34	27	2	25	7	560	34	7	7	1	6	-	27									
55 to 64 years old.....	1,039	462	443	7	436	19	577	953	417	400	5	395	17	536	81	45	43	2	41	2	36									
Civilian labor force.....	471	427	417	3	414	10	44	425	387	377	3	374	10	38	46	40	40	-	40	-	6									
Employed.....	460	421	416	3	413	5	39	414	381	376	3	373	5	33	46	40	40	-	40	-	6									
Agriculture.....	9	5	5	-	2	-	4	9	5	5	-	2	-	4	-	-	-	-	-	-	-									
Nonagricultural industries.....	451	416	411	-	411	5	35	405	376	371	-	371	5	29	46	40	40	-	40	-	6									
Unemployed.....	11	6	1	-	1	5	5	11	6	1	-	1	5	5	-	-	-	-	-	-	-									
Not in labor force.....	568	35	26	4	22	9	533	528	30	23	2	21	7	498	35	5	3	2	1	2	30									
65 years old and over.....	1,187	131	126	1	125	5	1,056	1,106	115	111	1	110	4	991	76	15	14	-	14	1	61									
Civilian labor force.....	132	96	95	-	95	1	36	119	86	85	-	85	1	33	12	9	9	-	9	-	3									
Employed.....	131	95	95	-	95	-	36	118	85	85	-	85	-	33	12	9	9	-	9	-	3									
Agriculture.....	3	-	-	-	-	-	3	3	-	-	-	-	-	3	-	-	-	-	-	-	-									
Nonagricultural industries.....	128	95	95	-	95	-	33	115	85	85	-	85	-	30	12	9	9	-	9	-	3									
Unemployed.....	1	1	-	-	-	1	-	1	1	1	-	-	1	-	-	-	-	-	-	-	-									
Not in labor force.....	1,055	35	31	1	30	4	1,020	987	29	26	1	25	3	958	64	6	5	-	5	1	58									

- Represents zero.

¹Race classification based on CPS.

Table 33. Indexes—Employment Status by Race, Sex, and Age

(See text for explanation of indexes)

Employment status, race, sex, and age	Index of inconsis- tency	95-percent confidence interval for index of inconsis- tency	Percent in class (CPS)	Net differ- ence rate	95-percent confidence interval for net difference rate	Employment status, race, sex, and age	Index of inconsis- tency	95-percent confidence interval for index of inconsis- tency	Percent in class (CPS)	Net differ- ence rate	95-percent confidence interval for net difference rate
TOTAL						TOTAL--Continued					
Both Sexes, 14 Years Old and Over						Both Sexes, 55 to 64 Years Old					
L-fold index.....	18	17.1 to 19.0	(X)	(X)	(X)	L-fold index.....	16	14.0 to 19.0	(X)	(X)	(X)
Employed in agriculture.	30	26.2 to 34.5	2.5	-0.3	-0.5 to -0.2	Employed in agriculture.	32	22.7 to 43.8	3.4	*-0.7	-1.3 to 0.0
Employed in nonagri- cultural industries....	15	13.8 to 15.5	52.9	-1.0	-1.4 to -0.6	Employed in nonagri- cultural industries....	13	10.4 to 15.0	58.5	-1.4	-2.6 to -0.3
Unemployed.....	61	55.7 to 67.1	2.5	*-0.1	-0.3 to 0.2	Unemployed.....	46	33.8 to 62.9	2.1	*0.5	-0.2 to 1.1
Not in labor force.....	16	15.1 to 17.0	42.1	1.4	0.9 to 1.8	Not in labor force.....	15	13.0 to 18.2	36.0	1.6	0.4 to 2.8
Both Sexes, 14 and 15 Years Old						Both Sexes, 65 Years Old and Over					
L-fold index.....	57	48.8 to 67.9	(X)	(X)	(X)	L-fold index.....	27	22.9 to 31.3	(X)	(X)	(X)
Employed in agriculture.	64	38.0 to 100.0	1.4	*-0.2	-1.1 to 0.7	Employed in agriculture.	44	31.8 to 59.6	2.8	-1.0	-1.6 to -0.4
Employed in nonagri- cultural industries....	51	41.4 to 63.5	13.5	-5.2	-7.3 to -3.0	Employed in nonagri- cultural industries....	23	19.0 to 27.6	14.5	*-0.4	-1.5 to 0.6
Unemployed.....	88	60.4 to 100.0	2.4	-1.3	-2.5 to -0.1	Unemployed.....	60	37.9 to 96.4	0.5	*0.4	0.0 to 0.8
Not in labor force.....	57	48.4 to 67.7	82.8	6.7	4.1 to 9.2	Not in labor force.....	26	21.9 to 30.3	82.2	*1.0	-0.2 to 2.2
Both Sexes, 16 and 17 Years Old						Male, 14 Years Old and Over					
L-fold index.....	44	38.8 to 50.1	(X)	(X)	(X)	L-fold index.....	19	17.9 to 20.9	(X)	(X)	(X)
Employed in agriculture.	47	30.1 to 74.8	2.8	*-0.8	-1.9 to 0.2	Employed in agriculture.	26	22.1 to 30.4	4.7	-0.5	-0.9 to -0.2
Employed in nonagri- cultural industries....	38	32.5 to 44.7	30.0	-2.9	-5.6 to -0.2	Employed in nonagri- cultural industries....	15	13.6 to 16.4	68.7	-0.9	-1.5 to -0.3
Unemployed.....	81	62.7 to 100.0	4.9	*-0.6	-2.4 to 1.3	Unemployed.....	58	51.1 to 66.1	3.1	*-0.2	-0.6 to 0.3
Not in labor force.....	42	36.6 to 48.3	62.3	4.3	1.3 to 7.3	Not in labor force.....	17	15.4 to 18.6	23.5	1.5	1.0 to 2.1
Both Sexes, 18 and 19 Years Old						Male, 14 and 15 Years Old					
L-fold index.....	33	28.4 to 39.5	(X)	(X)	(X)	L-fold index.....	54	42.6 to 69.3	(X)	(X)	(X)
Employed in agriculture.	39	21.1 to 73.2	2.2	*-0.3	-1.4 to 0.7	Employed in agriculture.	75	41.2 to 100.0	1.9	*-0.2	-1.8 to 1.4
Employed in nonagri- cultural industries....	26	21.3 to 32.1	52.3	*1.8	-1.1 to 4.7	Employed in nonagri- cultural industries....	41	28.7 to 59.3	10.7	-2.8	-5.4 to -0.2
Unemployed.....	76	57.0 to 100.0	6.2	*-1.3	-3.6 to 1.0	Unemployed.....	84	52.3 to 100.0	3.7	-2.3	-4.3 to -0.3
Not in labor force.....	31	25.9 to 37.9	39.2	*-0.2	-3.3 to 2.9	Not in labor force.....	54	42.4 to 69.7	83.8	5.3	1.9 to 8.8
Both Sexes, 20 to 24 Years Old						Male, 16 and 17 Years Old					
L-fold index.....	24	20.9 to 28.1	(X)	(X)	(X)	L-fold index.....	40	34.1 to 48.6	(X)	(X)	(X)
Employed in agriculture.	19	9.2 to 40.2	1.4	*0.1	-0.4 to 0.5	Employed in agriculture.	46	28.2 to 73.6	5.2	*-1.6	-3.5 to 0.3
Employed in nonagri- cultural industries....	20	17.1 to 24.5	63.6	*0.5	-1.3 to 2.2	Employed in nonagri- cultural industries....	34	27.2 to 42.8	32.6	*-2.7	-6.4 to 0.9
Unemployed.....	62	49.7 to 78.5	4.8	*0.2	-1.2 to 1.5	Unemployed.....	76	53.0 to 100.0	5.2	*-0.7	-3.3 to 1.9
Not in labor force.....	20	16.7 to 24.4	30.2	*-0.7	-2.3 to 0.9	Not in labor force.....	39	31.9 to 47.3	57.0	5.0	0.9 to 9.2
Both Sexes, 25 to 34 Years Old						Male, 18 and 19 Years Old					
L-fold index.....	15	13.3 to 17.7	(X)	(X)	(X)	L-fold index.....	34	27.3 to 43.5	(X)	(X)	(X)
Employed in agriculture.	23	14.6 to 34.7	1.7	*0.2	-0.2 to 0.6	Employed in agriculture.	38	19.5 to 72.3	4.8	*-1.0	-3.2 to 1.1
Employed in nonagri- cultural industries....	13	11.1 to 15.2	64.4	*-0.5	-1.5 to 0.5	Employed in nonagri- cultural industries....	26	19.8 to 35.8	58.0	*-0.7	-4.9 to 3.6
Unemployed.....	56	44.0 to 72.0	2.3	*0.0	-0.6 to 0.6	Unemployed.....	72	49.3 to 100.0	7.5	*-0.7	-4.3 to 3.0
Not in labor force.....	13	11.0 to 15.3	31.6	*0.3	-0.6 to 1.2	Not in labor force.....	31	23.3 to 41.7	29.8	*2.4	-1.9 to 6.7
Both Sexes, 35 to 44 Years Old						Male, 20 to 24 Years Old					
L-fold index.....	16	13.6 to 18.2	(X)	(X)	(X)	L-fold index.....	33	26.8 to 40.9	(X)	(X)	(X)
Employed in agriculture.	24	17.0 to 34.7	2.7	*-0.3	-0.7 to 0.2	Employed in agriculture.	15	6.2 to 35.1	3.1	*0.2	-0.7 to 1.1
Employed in nonagri- cultural industries....	14	11.5 to 16.0	68.2	*-0.7	-1.7 to 0.3	Employed in nonagri- cultural industries....	28	22.4 to 36.3	73.8	*1.1	-1.7 to 3.9
Unemployed.....	49	37.5 to 63.3	2.4	*-0.1	-0.7 to 0.5	Unemployed.....	65	48.4 to 88.3	6.7	*-0.4	-2.8 to 2.1
Not in labor force.....	13	11.2 to 15.8	26.7	1.1	0.1 to 2.0	Not in labor force.....	29	21.3 to 39.2	16.4	*-0.9	-3.3 to 1.5
Both Sexes, 45 to 54 Years Old						Male, 25 to 34 Years Old					
L-fold index.....	17	14.4 to 19.1	(X)	(X)	(X)	L-fold index.....	30	23.5 to 39.4	(X)	(X)	(X)
Employed in agriculture.	21	15.0 to 30.6	3.0	*-0.3	-0.7 to 0.2	Employed in agriculture.	18	10.7 to 30.7	3.0	*0.5	-0.1 to 1.1
Employed in nonagri- cultural industries....	14	11.9 to 16.4	68.1	-1.2	-2.2 to -0.2	Employed in nonagri- cultural industries....	28	21.1 to 36.5	91.9	*-0.9	-2.1 to 0.3
Unemployed.....	64	49.5 to 81.8	2.0	*0.0	-0.7 to 0.6	Unemployed.....	52	36.5 to 74.5	2.3	*0.4	-0.5 to 1.3
Not in labor force.....	14	12.2 to 16.9	26.9	1.5	0.6 to 2.5	Not in labor force.....	33	21.8 to 50.8	2.8	*0.0	-0.8 to 0.8

See footnotes at end of table.

Table 33. Indexes—Employment Status by Race, Sex, and Age—Continued

(See text for explanation of indexes)

Employment status, race, sex, and age	Index of inconsis- tency	95-percent confidence interval for index of inconsis- tency	Percent in class (CPS)	Net differ- ence rate	95-percent confidence interval for net difference rate	Employment status, race, sex, and age	Index of inconsis- tency	95-percent confidence interval for index of inconsis- tency	Percent in class (CPS)	Net differ- ence rate	95-percent confidence interval for net difference rate
TOTAL--Continued						TOTAL--Continued					
Male, 35 to 44 Years Old						Female, 20 to 24 Years Old					
L-fold index.....	25	19.0 to 32.3	(X)	(X)	(X)	L-fold index.....	21	17.1 to 25.8	(X)	(X)	(X)
Employed in agriculture.	18	11.2 to 27.8	4.7	*-0.1	-0.8 to 0.7	Employed in agriculture.	(S)	(S)	0.1	(S)	(S)
Employed in nonagri- cultural industries....	21	15.8 to 28.3	89.9	*-0.3	-1.4 to 0.9	Employed in nonagri- cultural industries....	17	13.4 to 22.0	56.1	*0.0	-2.1 to 2.1
Unemployed.....	41	27.4 to 60.6	2.7	*-0.3	-1.1 to 0.6	Unemployed.....	59	41.7 to 84.3	3.4	*0.5	-1.0 to 2.1
Not in labor force.....	33	22.1 to 50.5	2.6	*0.6	-0.2 to 1.4	Not in labor force.....	19	14.7 to 23.8	40.3	*-0.5	-2.7 to 1.7
Male, 45 to 54 Years Old						Female, 25 to 34 Years Old					
L-fold index.....	28	22.0 to 34.8	(X)	(X)	(X)	L-fold index.....	19	16.1 to 22.8	(X)	(X)	(X)
Employed in agriculture.	15	9.3 to 23.7	5.4	*-0.2	-0.9 to 0.6	Employed in agriculture.	47	22.4 to 98.3	0.6	*-0.1	-0.5 to 0.3
Employed in nonagri- cultural industries....	24	19.0 to 31.3	88.0	*-0.8	-2.2 to 0.5	Employed in nonagri- cultural industries....	16	12.7 to 18.9	39.8	*-0.2	-1.6 to 1.3
Unemployed.....	73	51.4 to 100.0	1.8	*-0.1	-1.0 to 0.9	Unemployed.....	61	43.3 to 84.9	2.3	*-0.4	-1.2 to 0.5
Not in labor force.....	32	23.2 to 43.9	4.8	*1.1	0.0 to 2.1	Not in labor force.....	19	15.5 to 22.1	57.3	*0.6	-1.1 to 2.2
Male, 55 to 64 Years Old						Female, 35 to 44 Years Old					
L-fold index.....	22	17.4 to 27.0	(X)	(X)	(X)	L-fold index.....	18	15.4 to 21.8	(X)	(X)	(X)
Employed in agriculture.	27	18.6 to 39.9	6.3	-1.2	-2.3 to -0.1	Employed in agriculture.	67	37.9 to 100.0	0.9	*-0.4	-1.0 to 0.1
Employed in nonagri- cultural industries....	16	12.1 to 20.7	75.5	*-1.4	-3.0 to 0.2	Employed in nonagri- cultural industries....	16	12.8 to 18.8	48.8	*-1.1	-2.6 to 0.4
Unemployed.....	36	23.1 to 54.9	3.3	*0.1	-0.9 to 1.1	Unemployed.....	57	40.4 to 80.9	2.1	*0.1	-0.8 to 0.9
Not in labor force.....	24	18.8 to 31.4	14.9	2.5	0.8 to 4.2	Not in labor force.....	17	13.7 to 20.0	48.2	*1.5	-0.1 to 3.0
Male, 65 Years Old and Over						Female, 45 to 54 Years Old					
L-fold index.....	26	21.2 to 31.4	(X)	(X)	(X)	L-fold index.....	17	14.4 to 20.6	(X)	(X)	(X)
Employed in agriculture.	42	30.2 to 58.7	6.3	-2.1	-3.5 to -0.7	Employed in agriculture.	62	36.1 to 100.0	1.0	*-0.4	-0.9 to 0.2
Employed in nonagri- cultural industries....	19	14.7 to 25.6	19.6	*-0.7	-2.4 to 1.0	Employed in nonagri- cultural industries....	14	11.2 to 16.9	50.2	-1.6	-3.0 to -0.1
Unemployed.....	59	34.9 to 100.0	1.2	*0.5	-0.4 to 1.4	Unemployed.....	56	39.7 to 80.2	2.1	*0.0	-0.9 to 0.9
Not in labor force.....	24	19.3 to 30.2	73.0	2.3	0.2 to 4.4	Not in labor force.....	16	13.2 to 19.4	46.7	1.9	0.4 to 3.5
Female, 14 Years Old and Over						Female, 55 to 64 Years Old					
L-fold index.....	20	19.1 to 21.7	(X)	(X)	(X)	L-fold index.....	16	13.2 to 20.2	(X)	(X)	(X)
Employed in agriculture.	63	48.1 to 82.8	0.6	*-0.2	-0.4 to 0.0	Employed in agriculture.	63	33.8 to 100.0	0.9	*-0.2	-0.8 to 0.5
Employed in nonagri- cultural industries....	17	15.6 to 18.3	39.2	-1.1	-1.7 to -0.5	Employed in nonagri- cultural industries....	13	10.0 to 16.4	43.4	*-1.4	-3.0 to 0.1
Unemployed.....	65	56.7 to 74.4	2.1	*0.0	-0.3 to 0.4	Unemployed.....	68	43.4 to 100.0	1.1	*0.8	-0.1 to 1.7
Not in labor force.....	19	17.8 to 20.5	58.2	1.2	0.6 to 1.9	Not in labor force.....	15	12.3 to 19.2	54.7	*0.9	-0.9 to 2.6
Female, 14 and 15 Years Old						Female, 65 Years Old and Over					
L-fold index.....	61	48.8 to 76.0	(X)	(X)	(X)	L-fold index.....	30	23.9 to 38.3	(X)	(X)	(X)
Employed in agriculture.	(S)	(S)	0.9	(S)	(S)	Employed in agriculture.	(S)	(S)	0.3	(S)	(S)
Employed in nonagri- cultural industries....	59	46.4 to 75.6	16.2	-7.5	-11.0 to -4.1	Employed in nonagri- cultural industries....	28	21.7 to 35.8	10.8	*-0.3	-1.6 to 1.1
Unemployed.....	(S)	(S)	1.1	(S)	(S)	Unemployed.....	(S)	(S)	0.1	(S)	(S)
Not in labor force.....	60	48.0 to 75.4	81.8	8.0	4.3 to 11.7	Not in labor force.....	30	24.0 to 38.5	88.9	*0.1	-1.4 to 1.5
Female, 16 and 17 Years Old						WHITE					
L-fold index.....	49	41.3 to 59.5	(X)	(X)	(X)	Both Sexes, 14 Years Old and Over					
Employed in agriculture.	(S)	(S)	0.2	(S)	(S)	L-fold index.....	17	16.4 to 18.3	(X)	(X)	(X)
Employed in nonagri- cultural industries....	43	34.9 to 53.9	27.3	*-3.1	-7.1 to 0.9	Employed in agriculture.	29	25.1 to 33.7	2.5	-0.4	-0.6 to -0.2
Unemployed.....	87	60.6 to 100.0	4.6	*-0.5	-3.1 to 2.2	Employed in nonagri- cultural industries....	14	13.3 to 15.1	53.0	-1.1	-1.5 to -0.6
Not in labor force.....	47	38.9 to 57.3	67.9	*3.6	-0.8 to 8.0	Unemployed.....	62	56.0 to 68.6	2.3	*0.0	-0.3 to 0.3
Female, 18 and 19 Years Old						Not in labor force.....	15	14.4 to 16.3	42.2	1.4	1.0 to 1.9
L-fold index.....	34	26.9 to 42.6	(X)	(X)	(X)	Male, 14 Years Old and Over					
Employed in agriculture.	(S)	(S)	0.0	(S)	(S)	L-fold index.....	19	17.6 to 20.7	(X)	(X)	(X)
Employed in nonagri- cultural industries....	26	19.8 to 34.6	47.3	*3.9	-0.1 to 8.0	Employed in agriculture.	25	21.0 to 29.6	4.6	-0.6	-0.9 to -0.2
Unemployed.....	82	53.6 to 100.0	5.2	*-1.8	-4.7 to 1.1	Employed in nonagri- cultural industries....	15	13.3 to 16.2	69.7	-0.9	-1.5 to -0.3
Not in labor force.....	33	25.9 to 42.3	47.6	*-2.4	-6.9 to 2.1	Unemployed.....	60	52.4 to 68.6	3.0	*-0.1	-0.6 to 0.3
						Not in labor force.....	17	15.0 to 18.3	22.8	1.6	1.0 to 2.2

See footnotes at end of table.

Table 33. Indexes—Employment Status by Race, Sex, and Age—Continued

(See text for explanation of indexes)

Employment status, race, sex, and age	Index of inconsis- tency	95-percent confidence interval for index of inconsis- tency	Percent in class (CPS)	Net differ- ence rate	95-percent confidence interval for net difference rate	Employment status, race, sex, and age	Index of inconsis- tency	95-percent confidence interval for index of inconsis- tency	Percent in class (CPS)	Net differ- ence rate	95-percent confidence interval for net difference rate
WHITE--Continued						NEGRO--Continued					
Female, 14 Years Old and Over						Male, 14 Years Old and Over					
L-fold index.....	20	18.2 to 21.1	(X)	(X)	(X)	L-fold index.....	23	18.8 to 29.4	(X)	(X)	(X)
Employed in agriculture.	62	46.4 to 82.5	0.7	-0.3	-0.5 to -0.1	Employed in agriculture.	38	24.2 to 58.7	5.3	*0.0	-1.7 to 1.7
Employed in nonagri- cultural industries....	16	15.1 to 17.8	38.5	-1.2	-1.9 to -0.6	Employed in nonagri- cultural industries....	18	13.6 to 24.3	59.4	*-1.7	-4.3 to 0.9
Unemployed.....	65	55.9 to 75.7	1.7	*0.2	-0.2 to 0.5	Unemployed.....	47	31.3 to 71.7	5.1	*-0.6	-2.4 to 1.3
Not in labor force.....	18	17.1 to 19.9	59.1	1.3	0.6 to 2.0	Not in labor force.....	21	15.7 to 27.9	30.3	*2.3	-0.4 to 4.9
NEGRO						Female, 14 Years Old and Over					
Both Sexes, 14 Years Old and Over						L-fold index.....					
L-fold index.....	26	22.4 to 29.6	(X)	(X)	(X)	L-fold index.....	29	24.0 to 34.1	(X)	(X)	(X)
Employed in agriculture.	43	29.2 to 63.6	2.4	*0.3	-0.5 to 1.2	Employed in agriculture.	(S)	(S)	0.2	(S)	(S)
Employed in nonagri- cultural industries....	20	16.5 to 23.7	52.0	*-0.8	-2.6 to 1.1	Employed in nonagri- cultural industries....	21	17.3 to 26.9	46.1	*0.0	-2.5 to 2.5
Unemployed.....	58	45.7 to 74.4	5.5	*-0.9	-2.3 to 0.5	Unemployed.....	66	49.1 to 89.5	5.8	*-1.2	-3.2 to 0.8
Not in labor force.....	24	20.2 to 27.8	40.1	*1.3	-0.6 to 3.3	Not in labor force.....	27	22.1 to 32.6	47.9	*0.6	-2.2 to 3.4

*Not different from zero at 95-percent confidence level.

S Does not meet publication standards.

X Not applicable.

Source: Table 32.

Table 34. Work Experience in 1969 of the Civilian Population 16 Years Old and Over by Age, Race, and Sex

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total population	Census classification							
		Worked in 1969							Did not work in 1969
		Total	50 to 52 weeks	48 to 49 weeks	40 to 47 weeks	27 to 39 weeks	14 to 26 weeks	13 weeks or less	
TOTAL, MALE									
16 years old and over.....	6,705	5,685	3,906	348	448	334	281	368	1,020
Worked in 1969.....	5,755	5,534	3,861	341	439	319	267	307	221
50 to 52 weeks.....	4,308	4,233	3,596	229	205	102	58	43	75
48 to 49 weeks.....	177	172	67	54	31	12	6	2	5
40 to 47 weeks.....	303	301	93	39	118	34	10	7	2
27 to 39 weeks.....	290	276	52	9	60	108	32	15	14
14 to 26 weeks.....	323	292	36	7	14	51	125	59	31
13 weeks or less.....	354	260	17	3	11	12	36	181	94
Did not work in 1969.....	950	151	45	7	9	15	14	61	799
16 to 24 years old.....	1,273	1,009	339	54	110	112	138	256	264
Worked in 1969.....	1,047	941	321	53	104	107	134	222	106
50 to 52 weeks.....	427	400	261	26	41	25	22	25	27
48 to 49 weeks.....	38	35	12	6	9	3	4	1	3
40 to 47 weeks.....	63	62	15	10	24	6	3	4	1
27 to 39 weeks.....	106	103	11	4	17	44	16	11	3
14 to 26 weeks.....	169	155	12	4	5	23	67	44	14
13 weeks or less.....	244	186	10	3	8	6	22	137	58
Did not work in 1969.....	226	68	18	1	6	5	4	34	158
25 to 64 years old.....	4,570	4,378	3,430	278	318	180	113	59	192
Worked in 1969.....	4,383	4,335	3,412	275	315	175	108	50	48
50 to 52 weeks.....	3,707	3,684	3,222	197	155	66	32	12	23
48 to 49 weeks.....	127	126	51	44	20	9	2	-	1
40 to 47 weeks.....	221	220	74	26	88	24	7	1	1
27 to 39 weeks.....	160	156	40	5	41	54	13	3	4
14 to 26 weeks.....	113	107	21	3	9	18	45	11	6
13 weeks or less.....	55	42	4	-	2	4	9	23	13
Did not work in 1969.....	187	43	18	3	3	5	5	9	144
65 years old and over.....	862	298	137	16	20	42	30	53	564
Worked in 1969.....	325	258	128	13	20	37	25	35	67
50 to 52 weeks.....	174	149	113	6	9	11	4	6	25
48 to 49 weeks.....	12	11	4	4	2	-	-	1	1
40 to 47 weeks.....	19	19	4	3	6	4	-	2	-
27 to 39 weeks.....	24	17	1	-	2	10	3	1	7
14 to 26 weeks.....	41	30	3	-	-	10	13	4	11
13 weeks or less.....	55	32	3	-	1	2	5	21	23
Did not work in 1969.....	537	40	9	3	5	5	5	18	497

- Represents zero.

Table 34. Work Experience in 1969 of the Civilian Population 16 Years Old and Over by Age, Race, and Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total population	Census classification							Did not work in 1969
		Worked in 1969							
		Total	50 to 52 weeks	48 to 49 weeks	40 to 47 weeks	27 to 39 weeks	14 to 26 weeks	13 weeks or less	
TOTAL, FEMALE									
16 years old and over.....	7,800	3,903	1,729	237	408	420	467	642	3,897
Worked in 1969.....	4,077	3,627	1,655	229	383	395	435	530	450
50 to 52 weeks.....	2,157	2,010	1,495	148	160	113	48	46	147
48 to 49 weeks.....	126	120	40	42	23	8	2	5	6
40 to 47 weeks.....	272	252	47	26	100	50	20	9	20
27 to 39 weeks.....	406	364	38	4	76	158	68	20	42
14 to 26 weeks.....	483	418	19	5	14	53	221	106	65
13 weeks or less.....	633	463	16	4	10	13	76	344	170
Did not work in 1969.....	3,723	276	74	8	25	25	32	112	3,447
16 to 24 years old.....	1,493	931	260	50	93	122	157	249	562
Worked in 1969.....	993	860	246	49	89	119	148	209	133
50 to 52 weeks.....	346	327	223	22	29	23	20	10	19
48 to 49 weeks.....	28	27	3	13	6	2	2	1	1
40 to 47 weeks.....	69	62	9	10	22	13	3	5	7
27 to 39 weeks.....	128	119	4	1	26	52	27	9	9
14 to 26 weeks.....	180	150	5	1	3	23	72	46	30
13 weeks or less.....	242	175	2	2	3	6	24	138	67
Did not work in 1969.....	500	71	14	1	4	3	9	40	429
25 to 39 years old.....	2,060	1,082	472	72	111	104	140	183	978
Worked in 1969.....	1,129	1,018	454	70	107	99	132	156	111
50 to 52 weeks.....	569	538	404	47	41	24	10	12	31
48 to 49 weeks.....	35	35	13	14	6	2	-	-	-
40 to 47 weeks.....	71	67	10	7	29	8	10	3	4
27 to 39 weeks.....	118	104	12	1	24	46	15	6	14
14 to 26 weeks.....	141	127	6	-	5	15	70	31	14
13 weeks or less.....	195	147	9	1	2	4	27	104	48
Did not work in 1969.....	931	64	18	2	4	5	8	27	867
40 to 59 years old.....	2,568	1,472	807	94	147	138	132	154	1,096
Worked in 1969.....	1,513	1,383	780	91	140	127	126	119	130
50 to 52 weeks.....	979	922	716	67	66	44	13	16	57
48 to 49 weeks.....	42	39	16	11	8	2	-	2	3
40 to 47 weeks.....	104	98	24	8	37	21	7	1	6
27 to 39 weeks.....	120	109	15	2	23	45	21	3	11
14 to 26 weeks.....	122	108	6	2	5	13	64	18	14
13 weeks or less.....	146	107	3	1	1	2	21	79	39
Did not work in 1969.....	1,055	89	27	3	7	11	6	35	966
60 years old and over.....	1,679	418	190	21	57	56	38	56	1,261
Worked in 1969.....	442	366	175	19	47	50	29	46	76
50 to 52 weeks.....	263	223	152	12	24	22	5	8	40
48 to 49 weeks.....	21	19	8	4	3	2	-	2	2
40 to 47 weeks.....	28	25	4	1	12	8	-	-	3
27 to 39 weeks.....	40	32	7	-	3	15	5	2	8
14 to 26 weeks.....	40	33	2	2	1	2	15	11	7
13 weeks or less.....	50	34	2	-	4	1	4	23	16
Did not work in 1969.....	1,237	52	15	2	10	6	9	10	1,185
WHITE, MALE									
16 years old and over.....	6,152	5,249	3,666	304	408	296	249	326	903
Worked in 1969.....	5,304	5,113	3,625	299	400	283	236	270	191
50 to 52 weeks.....	4,015	3,950	3,397	201	183	88	45	36	65
48 to 49 weeks.....	152	148	56	48	29	9	4	2	4
40 to 47 weeks.....	275	273	80	35	114	29	8	7	2
27 to 39 weeks.....	262	248	50	7	51	98	29	13	14
14 to 26 weeks.....	290	263	29	5	14	47	114	54	27
13 weeks or less.....	310	231	13	3	9	12	36	158	79
Did not work in 1969.....	848	136	41	5	8	13	13	56	712
16 to 24 years old.....	1,143	924	321	45	100	101	127	230	219
Worked in 1969.....	953	863	304	45	95	97	123	199	90
50 to 52 weeks.....	396	372	251	22	38	22	18	21	24
48 to 49 weeks.....	31	29	11	5	7	3	2	1	2
40 to 47 weeks.....	57	56	13	9	23	5	2	4	1
27 to 39 weeks.....	95	92	10	3	15	39	16	9	3
14 to 26 weeks.....	157	145	11	3	5	22	63	41	12
13 weeks or less.....	217	169	8	3	7	6	22	123	48
Did not work in 1969.....	190	61	17	-	5	4	4	31	129
25 to 64 years old.....	4,218	4,050	3,218	245	289	157	94	47	168
Worked in 1969.....	4,053	4,011	3,201	242	286	152	90	40	42
50 to 52 weeks.....	3,456	3,436	3,037	173	137	57	23	9	20
48 to 49 weeks.....	111	110	42	40	20	6	2	-	1
40 to 47 weeks.....	200	199	64	23	85	20	6	1	1
27 to 39 weeks.....	143	139	39	4	34	49	10	3	4
14 to 26 weeks.....	98	93	17	2	9	16	40	9	5
13 weeks or less.....	45	34	2	-	1	4	9	18	11
Did not work in 1969.....	165	39	17	3	3	5	4	7	126

- Represents zero.

Table 34. Work Experience in 1969 of the Civilian Population 16 Years Old and Over by Age, Race, and Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total population	Census classification							
		Worked in 1969							Did not work in 1969
		Total	50 to 52 weeks	48 to 49 weeks	40 to 47 weeks	27 to 39 weeks	14 to 26 weeks	13 weeks or less	
WHITE, MALE--Continued									
65 years old and over.....	791	275	127	14	19	38	28	49	516
Worked in 1969.....	298	239	120	12	19	34	23	31	59
50 to 52 weeks.....	163	142	109	6	8	9	4	6	21
48 to 49 weeks.....	10	9	3	3	2	-	-	1	1
40 to 47 weeks.....	18	18	3	3	6	4	-	2	-
27 to 39 weeks.....	24	17	1	-	2	10	3	1	7
14 to 26 weeks.....	35	25	1	-	-	9	11	4	10
13 weeks or less.....	48	28	3	-	1	2	5	17	20
Did not work in 1969.....	493	36	7	2	-	4	5	18	457
WHITE, FEMALE									
16 years old and over.....	7,108	3,484	1,563	200	348	376	422	575	3,624
Worked in 1969.....	3,641	3,249	1,497	194	327	355	395	481	392
50 to 52 weeks.....	1,926	1,796	1,362	127	133	96	40	38	130
48 to 49 weeks.....	105	99	30	39	19	6	1	4	6
40 to 47 weeks.....	241	222	43	20	89	45	17	8	19
27 to 39 weeks.....	366	331	33	3	64	152	62	17	35
14 to 26 weeks.....	439	379	15	3	14	44	204	99	60
13 weeks or less.....	564	422	14	2	8	12	71	315	142
Did not work in 1969.....	3,467	235	66	6	21	21	27	94	3,232
16 to 24 years old.....	1,341	838	238	45	79	113	145	218	503
Worked in 1969.....	897	782	226	44	78	111	138	185	115
50 to 52 weeks.....	315	299	205	22	23	22	19	8	16
48 to 49 weeks.....	27	26	3	13	6	2	1	1	1
40 to 47 weeks.....	65	58	9	8	20	13	3	5	7
27 to 39 weeks.....	116	108	3	-	24	50	24	7	8
14 to 26 weeks.....	168	138	5	1	3	18	68	43	30
13 weeks or less.....	206	153	1	-	2	6	23	121	53
Did not work in 1969.....	444	56	12	1	1	2	7	33	388
25 to 39 years old.....	1,861	941	412	60	91	94	120	164	920
Worked in 1969.....	988	889	398	58	87	89	115	142	99
50 to 52 weeks.....	493	466	357	38	36	20	5	10	27
48 to 49 weeks.....	27	27	10	12	4	1	-	-	-
40 to 47 weeks.....	56	52	8	6	21	7	8	2	4
27 to 39 weeks.....	107	95	11	1	19	44	14	6	12
14 to 26 weeks.....	127	113	4	-	5	13	63	28	14
13 weeks or less.....	178	136	8	1	2	4	25	96	42
Did not work in 1969.....	873	52	14	2	4	5	5	22	821
40 to 59 years old.....	2,352	1,326	742	76	125	122	120	141	1,026
Worked in 1969.....	1,356	1,245	715	74	119	113	114	110	111
50 to 52 weeks.....	881	830	661	55	53	37	11	13	51
48 to 49 weeks.....	37	34	13	10	7	2	-	2	3
40 to 47 weeks.....	93	88	22	5	36	18	6	1	5
27 to 39 weeks.....	103	96	12	2	18	43	19	2	7
14 to 26 weeks.....	109	98	4	1	5	12	59	17	11
13 weeks or less.....	133	99	3	1	-	1	19	75	34
Did not work in 1969.....	996	81	27	2	6	9	6	31	915
60 years old and over.....	1,554	379	171	19	53	47	37	52	1,175
Worked in 1969.....	400	333	158	18	43	42	28	44	67
50 to 52 weeks.....	237	201	139	12	21	17	5	7	36
48 to 49 weeks.....	14	12	4	4	2	1	-	1	2
40 to 47 weeks.....	27	24	4	1	12	7	-	-	3
27 to 39 weeks.....	40	32	7	-	3	15	5	2	8
14 to 26 weeks.....	35	30	2	1	1	1	14	11	5
13 weeks or less.....	47	34	2	-	4	1	4	23	13
Did not work in 1969.....	1,154	46	13	1	10	5	9	8	1,108
NEGRO, MALE									
16 years old and over.....	489	387	207	41	38	37	30	34	102
Worked in 1969.....	402	373	203	39	37	35	29	30	29
50 to 52 weeks.....	260	250	170	25	22	14	13	6	10
48 to 49 weeks.....	23	22	9	6	2	3	2	-	1
40 to 47 weeks.....	26	26	13	4	3	4	2	-	-
27 to 39 weeks.....	26	26	2	2	8	10	2	2	-
14 to 26 weeks.....	31	27	6	2	-	4	10	5	4
13 weeks or less.....	36	22	3	-	2	-	-	17	14
Did not work in 1969.....	87	14	4	2	1	2	1	4	73
16 to 24 years old.....	112	73	16	9	8	11	10	19	39
Worked in 1969.....	82	67	15	8	7	10	10	17	15
50 to 52 weeks.....	28	25	8	4	3	3	4	3	3
48 to 49 weeks.....	7	6	1	1	2	-	2	-	1
40 to 47 weeks.....	5	5	2	1	-	1	1	-	-
27 to 39 weeks.....	10	10	1	1	1	5	-	2	-
14 to 26 weeks.....	11	9	1	1	-	1	3	3	2
13 weeks or less.....	21	12	2	-	1	-	-	9	9
Did not work in 1969.....	30	6	1	1	1	1	-	2	24

- Represents zero.

Table 34. Work Experience in 1969 of the Civilian Population 16 Years Old and Over by Age, Race, and Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total population	Census classification							
		Worked in 1969							Did not work in 1969
		Total	50 to 52 weeks	48 to 49 weeks	40 to 47 weeks	27 to 39 weeks	14 to 26 weeks	13 weeks or less	
NEGRO, MALE--Continued									
25 to 64 years old.....	315	295	185	30	29	22	18	11	20
Worked in 1969.....	297	291	184	30	29	22	17	9	6
50 to 52 weeks.....	223	220	160	21	18	9	9	3	3
48 to 49 weeks.....	15	15	8	4	-	3	-	-	-
40 to 47 weeks.....	20	20	10	3	3	3	1	-	-
27 to 39 weeks.....	16	16	1	1	7	5	2	-	-
14 to 26 weeks.....	15	14	4	1	-	2	5	2	1
13 weeks or less.....	8	6	1	-	1	-	-	4	2
Did not work in 1969.....	18	4	1	-	-	-	1	2	14
65 years old and over.....	62	19	6	2	1	4	2	4	43
Worked in 1969.....	23	15	4	1	1	3	2	4	8
50 to 52 weeks.....	9	5	2	-	1	2	-	-	4
48 to 49 weeks.....	1	1	-	1	-	-	-	-	-
40 to 47 weeks.....	1	1	1	-	-	-	-	-	-
27 to 39 weeks.....	-	-	-	-	-	-	-	-	-
14 to 26 weeks.....	5	4	1	-	-	1	2	-	1
13 weeks or less.....	7	4	-	-	-	-	-	4	3
Did not work in 1969.....	39	4	2	1	-	1	-	-	35
NEGRO, FEMALE									
16 years old and over.....	630	386	155	35	56	39	41	60	244
Worked in 1969.....	404	349	148	33	52	35	38	43	55
50 to 52 weeks.....	213	198	124	21	24	17	6	6	15
48 to 49 weeks.....	19	19	10	2	4	1	1	1	-
40 to 47 weeks.....	24	23	3	5	10	2	3	-	1
27 to 39 weeks.....	38	32	5	1	12	5	6	3	6
14 to 26 weeks.....	43	38	4	2	-	9	17	6	5
13 weeks or less.....	67	39	2	2	2	1	5	27	28
Did not work in 1969.....	226	37	7	2	4	4	3	17	189
16 to 24 years old.....	136	85	19	5	14	8	11	28	51
Worked in 1969.....	89	71	17	5	11	7	10	21	18
50 to 52 weeks.....	26	23	15	-	6	1	1	-	3
48 to 49 weeks.....	1	1	-	-	-	-	1	-	-
40 to 47 weeks.....	4	4	-	2	2	-	-	-	-
27 to 39 weeks.....	11	10	1	1	2	1	3	2	1
14 to 26 weeks.....	11	11	-	-	-	5	4	2	-
13 weeks or less.....	36	22	1	2	1	-	1	17	14
Did not work in 1969.....	47	14	2	-	3	1	1	7	33
25 to 39 years old.....	179	128	58	12	17	8	17	16	51
Worked in 1969.....	130	119	55	12	17	8	15	12	11
50 to 52 weeks.....	71	67	46	9	3	4	3	2	4
48 to 49 weeks.....	7	7	3	2	2	-	-	-	-
40 to 47 weeks.....	12	12	2	1	7	-	2	-	-
27 to 39 weeks.....	10	9	1	-	5	2	1	-	1
14 to 26 weeks.....	14	14	2	-	-	2	7	3	-
13 weeks or less.....	16	10	1	-	-	-	2	7	6
Did not work in 1969.....	49	9	3	-	-	-	2	4	40
40 to 59 years old.....	198	135	60	16	21	14	12	12	63
Worked in 1969.....	144	127	60	15	20	12	12	8	17
50 to 52 weeks.....	91	87	51	12	12	7	2	3	4
48 to 49 weeks.....	4	4	3	-	1	-	-	-	-
40 to 47 weeks.....	7	6	1	2	1	1	1	-	1
27 to 39 weeks.....	17	13	3	-	5	2	2	1	4
14 to 26 weeks.....	13	10	2	1	-	1	5	1	3
13 weeks or less.....	12	7	-	-	1	1	2	3	5
Did not work in 1969.....	54	8	-	1	1	2	-	4	46
60 years old and over.....	117	38	18	2	4	9	1	4	79
Worked in 1969.....	41	32	16	1	4	8	1	2	9
50 to 52 weeks.....	25	21	12	-	3	5	-	1	4
48 to 49 weeks.....	7	7	4	-	1	1	-	1	-
40 to 47 weeks.....	1	1	-	-	-	1	-	-	-
27 to 39 weeks.....	-	-	-	-	-	-	-	-	-
14 to 26 weeks.....	5	3	-	1	-	1	1	-	2
13 weeks or less.....	3	-	-	-	-	-	-	-	3
Did not work in 1969.....	76	6	2	1	-	1	-	2	70

- Represents zero.

Table 35. Indexes—Work Experience in 1969 by Age, Race, and Sex

(See text for explanation of indexes)

Work experience in 1969, age, race, and sex	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Work experience in 1969, age, race, and sex	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
TOTAL						TOTAL--Continued					
Male, 16 Years Old and Over						Female, 40 to 59 Years Old					
L-fold index.....	43	41.6 to 45.2	(X)	(X)	(X)	L-fold index.....	36	34.1 to 39.1	(X)	(X)	(X)
50 to 52 weeks.....	32	30.2 to 33.9	64.3	-6.0	-7.0 to -5.0	50 to 52 weeks.....	30	27.4 to 33.4	38.1	-6.7	-8.2 to -5.2
48 to 49 weeks.....	82	74.6 to 90.8	2.6	2.6	1.9 to 3.2	48 to 49 weeks.....	86	71.1 to 100.0	1.6	2.0	1.2 to 2.9
40 to 47 weeks.....	72	66.4 to 79.2	4.5	2.2	1.5 to 2.8	40 to 47 weeks.....	74	63.7 to 86.0	4.1	1.7	0.6 to 2.7
27 to 39 weeks.....	69	62.1 to 75.7	4.3	0.7	0.1 to 1.3	27 to 39 weeks.....	69	58.8 to 80.0	4.7	*0.7	-0.3 to 1.7
14 to 26 weeks.....	61	55.2 to 68.2	4.8	-0.6	-1.2 to -0.1	14 to 26 weeks.....	52	43.7 to 62.4	4.8	*0.4	-0.5 to 1.3
13 weeks or less.....	53	47.4 to 58.6	5.3	*0.2	-0.4 to 0.8	13 weeks or less.....	50	42.5 to 59.4	5.7	*0.3	-0.6 to 1.2
Did not work.....	22	20.0 to 24.6	14.2	1.0	0.5 to 1.6	Did not work.....	18	15.3 to 20.1	41.1	1.6	0.4 to 2.8
Male, 16 to 24 Years Old						Female, 60 Years Old and Over					
L-fold index.....	56	52.7 to 59.6	(X)	(X)	(X)	L-fold index.....	38	34.2 to 42.7	(X)	(X)	(X)
50 to 52 weeks.....	45	40.5 to 50.9	33.5	-6.9	-9.4 to -4.5	50 to 52 weeks.....	38	32.2 to 44.6	15.7	-4.4	-5.8 to -2.9
48 to 49 weeks.....	90	72.1 to 100.0	3.0	*1.3	-0.2 to 2.7	48 to 49 weeks.....	82	58.3 to 100.0	1.3	*0.0	-0.7 to 0.7
40 to 47 weeks.....	77	64.5 to 92.2	5.0	3.7	1.9 to 5.5	40 to 47 weeks.....	73	56.9 to 94.8	1.7	1.7	0.8 to 2.7
27 to 39 weeks.....	65	55.4 to 77.1	8.3	*0.5	-1.3 to 2.3	27 to 39 weeks.....	71	55.3 to 90.4	2.4	*1.0	0.0 to 1.9
14 to 26 weeks.....	64	55.7 to 73.8	13.3	-2.4	-4.5 to -0.4	14 to 26 weeks.....	63	47.3 to 84.0	2.4	*-0.1	-1.0 to 0.7
13 weeks or less.....	56	50.0 to 63.5	19.2	*0.9	-1.4 to 3.3	13 weeks or less.....	58	45.2 to 75.6	3.0	*0.4	-0.6 to 1.3
Did not work.....	44	38.2 to 50.6	17.8	3.0	0.9 to 5.1	Did not work.....	20	16.8 to 23.9	73.7	1.4	0.1 to 2.8
Male, 25 to 64 Years Old						WHITE					
L-fold index.....	54	51.4 to 57.6	(X)	(X)	(X)	Male, 16 Years Old and Over					
50 to 52 weeks.....	44	41.1 to 47.3	81.1	-6.1	-7.2 to -4.9	L-fold index.....	42	40.5 to 44.3	(X)	(X)	(X)
48 to 49 weeks.....	81	72.7 to 91.1	2.8	3.3	2.5 to 4.1	50 to 52 weeks.....	31	28.8 to 32.6	65.3	-5.7	-6.6 to -4.7
40 to 47 weeks.....	71	64.3 to 79.3	4.8	2.1	1.3 to 3.0	48 to 49 weeks.....	82	73.5 to 90.7	2.5	2.5	1.9 to 3.1
27 to 39 weeks.....	71	62.2 to 80.8	3.5	*0.4	-0.2 to 1.1	40 to 47 weeks.....	70	64.1 to 77.3	4.5	2.2	1.5 to 2.9
14 to 26 weeks.....	62	52.0 to 73.2	2.5	*0.0	-0.5 to 0.5	27 to 39 weeks.....	68	61.2 to 75.5	4.3	*0.6	-0.1 to 1.2
13 weeks or less.....	60	47.4 to 76.9	1.2	*0.1	-0.3 to 0.5	14 to 26 weeks.....	60	53.9 to 67.6	4.7	-0.7	-1.2 to -0.1
Did not work.....	25	20.3 to 30.9	4.1	*0.1	-0.3 to 0.5	13 weeks or less.....	53	47.5 to 59.3	5.0	*0.3	-0.3 to 0.8
Male, 65 Years Old and Over						Did not work.....	22	19.5 to 24.3	13.8	0.9	0.3 to 1.5
L-fold index.....	42	36.8 to 47.2	(X)	(X)	(X)	Female, 16 Years Old and Over					
50 to 52 weeks.....	33	26.8 to 41.3	20.2	-4.3	-6.4 to -2.1	L-fold index.....	36	34.2 to 37.2	(X)	(X)	(X)
48 to 49 weeks.....	73	46.6 to 100.0	1.4	*0.5	-0.6 to 1.5	50 to 52 weeks.....	29	27.1 to 31.0	27.1	-5.1	-5.9 to -4.3
40 to 47 weeks.....	71	48.3 to 100.0	2.2	*0.1	-1.1 to 1.3	48 to 49 weeks.....	76	66.5 to 86.7	1.5	1.3	0.9 to 1.8
27 to 39 weeks.....	72	53.9 to 96.9	2.8	2.1	0.5 to 3.7	40 to 47 weeks.....	73	65.9 to 80.2	3.4	1.5	0.9 to 2.1
14 to 26 weeks.....	66	49.1 to 88.9	4.8	*-1.3	-2.9 to 0.3	27 to 39 weeks.....	62	56.6 to 68.5	5.2	*0.1	-0.5 to 0.7
13 weeks or less.....	65	51.0 to 83.3	6.4	*-0.2	-2.1 to 1.7	14 to 26 weeks.....	56	51.0 to 61.5	6.2	*-0.2	-0.8 to 0.4
Did not work.....	27	22.5 to 32.2	62.3	3.1	0.7 to 5.5	13 weeks or less.....	49	44.5 to 53.1	7.9	*0.2	-0.5 to 0.8
Female, 16 Years Old and Over						Did not work.....	18	16.3 to 19.1	48.8	2.2	1.5 to 2.9
L-fold index.....	37	35.9 to 38.8	(X)	(X)	(X)	NEGRO					
50 to 52 weeks.....	31	28.7 to 32.6	27.7	-5.5	-6.3 to -4.7	Male, 16 Years Old and Over					
48 to 49 weeks.....	79	69.7 to 88.5	1.6	1.4	1.0 to 1.9	L-fold index.....	57	51.4 to 63.8	(X)	(X)	(X)
40 to 47 weeks.....	74	67.3 to 80.7	3.5	1.7	1.2 to 2.3	50 to 52 weeks.....	51	44.4 to 60.1	53.2	-10.8	-15.5 to -6.2
27 to 39 weeks.....	65	59.7 to 71.2	5.2	*0.2	-0.4 to 0.8	48 to 49 weeks.....	86	67.1 to 100.0	4.7	3.7	0.7 to 6.7
14 to 26 weeks.....	57	52.1 to 62.2	6.2	*-0.2	-0.8 to 0.4	40 to 47 weeks.....	97	76.2 to 100.0	5.3	*2.5	-0.7 to 5.6
13 weeks or less.....	50	46.2 to 54.5	8.1	*0.1	-0.5 to 0.7	27 to 39 weeks.....	73	53.7 to 98.7	5.3	*2.3	-0.5 to 5.0
Did not work.....	19	17.3 to 20.1	47.7	2.2	1.5 to 2.9	14 to 26 weeks.....	72	52.5 to 97.8	6.3	*-0.2	-2.9 to 2.5
Female, 16 to 24 Years Old						13 weeks or less.....	55	39.8 to 77.2	7.4	*-0.4	-2.9 to 2.1
L-fold index.....	47	43.5 to 49.9	(X)	(X)	(X)	Did not work.....	28	20.8 to 38.2	17.8	3.1	0.4 to 5.8
50 to 52 weeks.....	33	28.4 to 38.3	23.2	-5.8	-7.5 to -4.1	Female, 16 Years Old and Over					
48 to 49 weeks.....	68	51.8 to 90.1	1.9	1.5	0.5 to 2.5	L-fold index.....	54	49.1 to 59.5	(X)	(X)	(X)
40 to 47 weeks.....	77	64.0 to 92.5	4.6	1.6	0.2 to 3.1	50 to 52 weeks.....	46	38.9 to 53.8	33.8	-9.2	-12.7 to -5.7
27 to 39 weeks.....	64	54.0 to 75.2	8.6	*-0.4	-2.0 to 1.2	48 to 49 weeks.....	96	72.7 to 100.0	3.0	2.5	0.3 to 4.8
14 to 26 weeks.....	65	56.5 to 73.9	12.1	*-1.5	-3.4 to 0.3	40 to 47 weeks.....	79	61.2 to 100.0	3.8	5.1	2.6 to 7.6
13 weeks or less.....	52	76.3 to 59.5	16.2	*0.5	-1.5 to 2.4	27 to 39 weeks.....	93	74.0 to 100.0	6.0	*0.2	-2.5 to 2.8
Did not work.....	30	26.2 to 33.9	33.5	4.2	2.2 to 6.1	14 to 26 weeks.....	64	48.1 to 84.5	6.8	*-0.3	-2.6 to 2.0
Female, 25 to 39 Years Old						13 weeks or less.....	64	51.6 to 79.7	10.6	*-1.1	-3.8 to 1.6
L-fold index.....	36	33.7 to 39.2	(X)	(X)	(X)	Did not work.....	31	25.9 to 37.9	35.9	*2.9	-0.2 to 5.9
50 to 52 weeks.....	30	26.4 to 33.8	27.6	-4.7	-6.2 to -3.2						
48 to 49 weeks.....	76	60.4 to 94.6	1.7	1.8	0.9 to 2.7						
40 to 47 weeks.....	71	59.4 to 85.1	3.5	1.9	0.9 to 3.0						
27 to 39 weeks.....	62	51.9 to 73.7	5.7	*-0.7	-1.8 to 0.4						
14 to 26 weeks.....	54	45.5 to 63.7	6.8	*-0.1	-1.2 to 1.1						
13 weeks or less.....	50	42.5 to 57.7	9.5	*-0.6	-1.9 to 0.7						
Did not work.....	17	14.7 to 19.9	45.2	2.3	1.0 to 3.6						

*Not different from zero at the 95-percent confidence level.

X Not applicable.

Source: Table 34.

**Table 36. Employment Status and Class of Worker of the Civilian Population
16 Years Old and Over by Race and Sex**

(Data shown are number of persons in the March 1970 CPS matched to 1970 census 20-percent sample households)

CPS classification	Total	Census classification											Unem- ployed	Not in labor force
		Employed in agriculture				Employed in nonagricultural industries								
		Total	Wage and salary workers	Self- employed	Unpaid family workers	Total	Private wage and salary workers		Govern- ment	Self- employed	Unpaid family workers			
							Total	Own business incorpo- rated						
TOTAL														
Total, 16 years old and over..	14,496	322	133	178	11	7,914	6,054	104	1,341	485	34	372	5,888	
Employed in agriculture.....	371	249	92	151	6	31	22	-	3	6	-	7	84	
Wage and salary workers.....	108	75	70	4	1	15	15	-	-	-	-	4	14	
Self-employed workers.....	224	164	18	145	1	15	6	-	3	6	-	3	42	
Unpaid family workers.....	39	10	4	2	4	1	1	-	-	-	-	-	28	
Employed in nonagricultural industries.....	8,022	43	26	17	-	7,453	5,689	100	1,283	454	27	103	423	
Private wage and salary workers..	6,065	29	20	9	-	5,642	5,452	82	112	74	4	84	310	
Government workers.....	1,353	7	5	2	-	1,296	131	1	1,162	2	1	9	41	
Self-employed workers.....	551	7	1	6	-	478	97	16	7	369	5	9	57	
Unpaid family workers.....	53	-	-	-	-	37	9	1	2	9	17	1	15	
Unemployed.....	367	4	4	-	-	101	88	-	10	3	-	154	108	
Not in labor force.....	5,736	26	11	10	5	329	255	4	45	22	7	108	5,273	
Male, 16 years old and over....	6,696	290	115	170	5	4,810	3,721	88	709	375	5	204	1,392	
Employed in agriculture.....	324	235	84	148	3	26	17	-	3	6	-	5	58	
Wage and salary workers.....	92	67	62	4	1	11	11	-	-	-	-	3	11	
Self-employed workers.....	218	163	18	144	1	15	6	-	3	6	-	2	38	
Unpaid family workers.....	14	5	4	-	1	-	-	-	-	-	-	-	9	
Employed in nonagricultural industries.....	4,863	39	23	16	-	4,623	3,575	88	692	353	3	65	136	
Private wage and salary workers..	3,743	25	17	8	-	3,558	3,444	71	57	57	-	50	110	
Government workers.....	717	7	5	2	-	690	57	1	631	2	-	5	15	
Self-employed workers.....	400	7	1	6	-	373	73	16	4	294	2	9	11	
Unpaid family workers.....	3	-	-	-	-	2	1	-	-	-	1	1	-	
Unemployed.....	204	3	3	-	-	69	62	-	5	2	-	92	40	
Not in labor force.....	1,305	13	5	6	2	92	67	-	9	14	2	42	1,158	
Female, 16 years old and over..	7,800	32	18	8	6	3,104	2,333	16	632	110	29	168	4,496	
Employed in agriculture.....	47	14	8	3	3	5	5	-	-	-	-	2	26	
Wage and salary workers.....	16	8	8	-	-	4	4	-	-	-	-	1	3	
Self-employed workers.....	6	1	-	1	-	-	-	-	-	-	-	1	4	
Unpaid family workers.....	25	5	-	2	3	1	1	-	-	-	-	-	19	
Employed in nonagricultural industries.....	3,159	4	3	1	-	2,830	2,114	12	591	101	24	38	287	
Private wage and salary workers..	2,322	4	3	1	-	2,084	2,008	11	55	17	4	34	200	
Government workers.....	636	-	-	-	-	606	74	-	531	-	1	4	26	
Self-employed workers.....	151	-	-	-	-	105	24	-	3	75	3	-	46	
Unpaid family workers.....	50	-	-	-	-	35	8	1	2	9	16	-	15	
Unemployed.....	163	1	1	-	-	32	26	-	5	1	-	62	68	
Not in labor force.....	4,431	13	6	4	3	237	188	4	36	8	5	66	4,115	
WHITE														
Total, 16 years old and over..	13,252	284	113	162	9	7,234	5,561	101	1,184	456	33	317	5,417	
Employed in agriculture.....	338	227	78	143	6	28	19	-	3	6	-	7	76	
Wage and salary workers.....	90	63	59	3	1	13	13	-	-	-	-	4	10	
Self-employed workers.....	210	155	16	138	1	14	5	-	3	6	-	3	38	
Unpaid family workers.....	38	9	3	2	4	1	1	-	-	-	-	-	28	
Employed in nonagricultural industries.....	7,337	37	25	12	-	6,835	5,247	98	1,134	427	27	91	374	
Private wage and salary workers..	5,564	25	19	6	-	5,192	5,035	80	88	65	4	75	272	
Government workers.....	1,202	6	5	1	-	1,155	115	1	1,038	1	1	6	35	
Self-employed workers.....	519	6	1	5	-	451	88	16	6	352	5	9	53	
Unpaid family workers.....	52	-	-	-	-	37	9	1	2	9	17	1	14	
Unemployed.....	306	2	2	-	-	86	74	-	9	3	-	126	92	
Not in labor force.....	5,271	18	8	7	3	285	221	3	38	20	6	93	4,875	
Male, 16 years old and over....	6,144	258	99	155	4	4,467	3,473	86	637	352	5	179	1,240	
Employed in agriculture.....	293	214	71	140	3	23	14	-	3	6	-	5	51	
Wage and salary workers.....	76	56	52	3	1	9	9	-	-	-	-	3	8	
Self-employed workers.....	204	154	16	137	1	14	5	-	3	6	-	2	34	
Unpaid family workers.....	13	4	3	-	1	-	-	-	-	-	-	-	9	
Employed in nonagricultural industries.....	4,515	33	22	11	-	4,303	3,345	86	623	332	3	60	119	
Private wage and salary workers..	3,488	21	16	5	-	3,321	3,223	69	47	51	-	46	100	
Government workers.....	647	6	5	1	-	626	53	1	572	1	-	4	11	
Self-employed workers.....	377	6	1	5	-	354	68	16	4	280	2	9	8	
Unpaid family workers.....	3	-	-	-	-	2	1	-	-	-	1	1	-	
Unemployed.....	180	2	2	-	-	62	55	-	5	2	-	77	39	
Not in labor force.....	1,156	9	4	4	1	79	59	-	6	12	2	37	1,031	

- Represents zero.

**Table 36. Employment Status and Class of Worker of the Civilian Population
16 Years Old and Over by Race and Sex —Continued**

(Data shown are number of persons in the March 1970 CPS matched to 1970 census 20-percent sample households)

CPS classification	Total	Census classification											
		Employed in agriculture				Employed in nonagricultural industries						Unem- ployed	Not in labor force
		Total	Wage and salary workers	Self- employed	Unpaid family workers	Total	Private wage and salary workers		Govern- ment	Self- employed	Unpaid family workers		
							Total	Own business incorporated					
WHITE--Continued													
Female, 16 years old and over..	7,108	26	14	7	5	2,767	2,088	15	547	104	28	138	4,177
Employed in agriculture.....	45	13	7	3	3	5	5	-	-	-	-	2	25
Wage and salary workers.....	14	7	7	-	-	4	4	-	-	-	-	1	2
Self-employed workers.....	6	1	-	1	-	-	-	-	-	-	-	1	4
Unpaid family workers.....	25	5	-	2	3	1	1	-	-	-	-	-	19
Employed in nonagricultural industries.....	2,822	4	3	1	-	2,532	1,902	12	511	95	24	31	255
Private wage and salary workers..	2,076	4	3	1	-	1,871	1,812	11	41	14	4	29	172
Government workers.....	555	-	-	-	-	529	62	-	466	-	1	2	24
Self-employed workers.....	142	-	-	-	-	97	20	-	2	72	3	-	45
Unpaid family workers.....	49	-	-	-	-	35	8	1	2	9	16	-	14
Unemployed.....	126	-	-	-	-	24	19	-	4	1	-	49	53
Not in labor force.....	4,115	9	4	3	2	206	162	3	32	8	4	56	3,844
NEGRO													
Total, 16 years old and over..	1,119	33	19	12	2	616	453	2	145	18	-	54	416
Employed in agriculture.....	29	18	13	5	-	3	3	-	-	-	-	-	8
Wage and salary workers.....	16	10	10	-	-	2	2	-	-	-	-	-	4
Self-employed workers.....	12	7	2	5	-	1	1	-	-	-	-	-	4
Unpaid family workers.....	1	1	1	-	-	-	-	-	-	-	-	-	-
Employed in nonagricultural industries.....	626	5	1	4	-	563	408	1	138	17	-	12	46
Private wage and salary workers..	465	4	1	3	-	416	387	1	22	7	-	9	36
Government workers.....	141	1	-	1	-	131	15	-	115	1	-	3	6
Self-employed workers.....	20	-	-	-	-	16	6	-	1	9	-	-	4
Unpaid family workers.....	-	-	-	-	-	-	-	-	-	-	-	-	-
Unemployed.....	60	2	2	-	-	15	14	-	1	-	-	27	16
Not in labor force.....	404	8	3	3	2	35	28	1	6	1	-	15	346
Male, 16 years old and over....	489	28	16	11	1	307	228	1	65	14	-	24	130
Employed in agriculture.....	28	18	13	5	-	3	3	-	-	-	-	-	7
Wage and salary workers.....	15	10	10	-	-	2	2	-	-	-	-	-	3
Self-employed workers.....	12	7	2	5	-	1	1	-	-	-	-	-	4
Unpaid family workers.....	1	1	1	-	-	-	-	-	-	-	-	-	-
Employed in nonagricultural industries.....	315	5	1	4	-	288	212	1	63	13	-	5	17
Private wage and salary workers..	238	4	1	3	-	220	206	1	9	5	-	4	10
Government workers.....	64	1	-	1	-	58	3	-	54	1	-	1	4
Self-employed workers.....	13	-	-	-	-	10	3	-	-	7	-	-	3
Unpaid family workers.....	-	-	-	-	-	-	-	-	-	-	-	-	-
Unemployed.....	23	1	1	-	-	7	7	-	-	-	-	14	1
Not in labor force.....	123	4	1	2	1	9	6	-	2	1	-	5	105
Female, 16 years old and over..	630	5	3	1	1	309	225	1	80	4	-	30	286
Employed in agriculture.....	1	-	-	-	-	-	-	-	-	-	-	-	1
Wage and salary workers.....	1	-	-	-	-	-	-	-	-	-	-	-	1
Self-employed workers.....	-	-	-	-	-	-	-	-	-	-	-	-	-
Unpaid family workers.....	-	-	-	-	-	-	-	-	-	-	-	-	-
Employed in nonagricultural industries.....	311	-	-	-	-	275	196	-	75	4	-	7	29
Private wage and salary workers..	227	-	-	-	-	196	181	-	13	2	-	5	26
Government workers.....	77	-	-	-	-	73	12	-	61	-	-	2	2
Self-employed workers.....	7	-	-	-	-	6	3	-	1	2	-	-	1
Unpaid family workers.....	-	-	-	-	-	-	-	-	-	-	-	-	-
Unemployed.....	37	1	1	-	-	8	7	-	1	-	-	13	15
Not in labor force.....	281	4	2	1	1	26	22	1	4	-	-	10	241

- Represents zero.

Table 37. Occupation of Persons Employed in Both CPS and Census by Sex

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Census classification									
	Professional, technical, and kindred workers			Managers and administrators, except farm			Sales workers			
	Total employed	Total	Engineers	Physicians, dentists, and related practitioners	Health workers, except practitioners	Teachers, elementary and secondary	Total	Salaried	Self-employed	Total
BOTH SEXES										
Employed, 16 years old and over.....	7,781	1,221	136	48	82	40	295	680	565	115
Professional, technical, and kindred workers.....	1,169	993	102	46	68	29	273	37	34	3
Engineers.....	132	102	86	-	-	-	-	9	9	-
Physicians, dentists, and related practitioners.....	49	46	-	46	-	-	-	2	1	1
Health workers, except practitioners.....	117	99	-	-	68	27	-	1	1	-
Registered nurses.....	77	68	-	-	67	-	-	-	-	-
Teachers, elementary and secondary schools.....	279	267	-	-	-	1	258	-	-	2
Other professional, technical, and kindred workers.....	592	479	16	-	-	1	15	23	2	5
Managers and administrators, except farm.....	900	70	13	-	-	2	8	427	88	90
Salaried.....	691	63	12	-	-	2	7	416	54	4
Self-employed.....	209	7	1	-	-	-	1	15	81	36
Retail trade.....	106	-	-	-	-	-	-	63	5	22
Other industries.....	103	7	1	-	-	1	1	36	14	2
Sales workers.....	456	15	3	1	1	-	-	15	11	4
Retail trade.....	258	7	-	1	1	-	-	9	8	1
Other industries.....	198	8	3	-	-	-	-	6	3	3
Clerical and kindred workers.....	1,411	71	3	-	3	4	11	41	38	3
Bookkeepers.....	146	9	-	-	1	-	-	1	1	-
Secretaries, stenographers, and typists.....	361	10	-	-	1	-	1	5	5	3
Other clerical and kindred workers.....	904	52	3	-	2	3	10	35	32	1
Craftsmen and kindred workers.....	1,043	33	13	1	-	1	-	36	31	5
Carpenters.....	81	-	-	-	-	-	-	2	1	1
Construction craftsmen, except carpenters.....	223	3	2	-	-	-	-	9	7	-
Foremen, n.e.c.....	155	5	1	-	-	-	-	14	13	1
Machinists.....	55	2	1	-	-	-	-	5	4	1
Mechanics and repairmen.....	223	8	1	-	-	-	-	5	4	1
Metal craftsmen, except mechanics and machinists.....	68	1	1	-	-	-	-	2	2	-
Other craftsmen and kindred workers.....	238	14	7	1	-	1	-	3	3	2
Operatives, except transport.....	986	8	1	-	-	-	-	11	8	4
Durable goods manufacturing.....	456	6	1	-	-	-	-	3	2	1
Nondurable goods manufacturing.....	339	1	-	-	-	-	-	5	3	3
Other industries.....	191	1	-	-	-	-	-	3	3	1
Transport equipment operatives.....	279	-	-	-	-	-	-	4	4	10
Truck drivers.....	145	-	-	-	-	-	-	1	1	2
Deliverymen and routemen.....	51	-	-	-	-	-	-	-	-	7
Other transport equipment operatives.....	83	-	-	-	-	-	-	3	3	1
Laborers, except farm.....	365	6	-	-	-	1	-	8	4	13
Construction.....	65	-	-	-	-	-	-	-	-	-
Freight, stock, and material handlers.....	148	2	-	-	-	-	-	4	2	10
Other laborers.....	152	4	-	-	-	1	-	4	2	3
Farmers and farm managers.....	176	-	-	-	-	-	-	1	1	2
Farm laborers and farm foremen.....	79	1	-	-	-	-	-	-	-	1
Farm laborers, unpaid family workers.....	10	-	-	-	-	-	-	-	-	-
Farm laborers, except unpaid, and farm foremen.....	69	1	-	-	-	-	-	-	-	1
Service workers, except private household.....	783	22	1	-	10	3	2	12	8	9
Cleaning service workers.....	181	1	-	-	-	-	-	3	3	2
Food service workers.....	258	4	-	-	-	1	1	5	1	7
Health service workers.....	110	-	-	-	-	-	-	-	-	-
Personal service.....	139	2	-	-	-	2	-	4	4	-
Protective service workers.....	95	2	1	-	-	-	-	-	-	-
Private household workers.....	134	2	-	-	-	1	1	-	-	1

- Represents zero.

Table 37. Occupation of Persons Employed in Both CPS and Census by Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Census classification—Continued													
	Clerical and kindred workers			Craftsmen and kindred workers							Operatives, except transport			
	Total	Book-keepers	Secretaries, stenographers, and typists	Total	Construction craftsmen	Foremen, n.e.c.	Machinists	Mechanics and repairmen	Metal craftsmen, except mechanics and repairmen	Other craftsmen and kindred workers	Total	Durable goods manufacturing	Nondurable goods manufacturing	Other industries
BOTH SEXES—Continued														
Employed, 16 years old and over.....	1,427	174	522	1,071	293	162	36	245	72	263	1,048	459	338	251
Professional, technical, and kindred workers.....	59	12	12	27	4	3	-	9	1	11	18	7	6	5
Engineers.....	4	-	-	11	-	3	-	3	-	5	3	2	1	-
Physicians, dentists, and related practitioners.....	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Health workers, except practitioners.....	2	-	2	-	-	-	-	-	-	-	-	-	-	-
Registered nurses.....	1	-	1	-	-	-	-	-	-	-	-	-	-	-
Teachers, elementary and secondary schools.....	5	1	1	1	-	-	-	-	-	1	2	1	-	1
Other professional, technical, and kindred workers.....	47	11	9	15	2	1	-	6	1	5	13	4	5	4
Managers and administrators, except farm.....	74	18	16	74	11	32	1	13	4	13	30	8	6	16
Self-employed.....	71	17	16	48	3	30	1	4	1	9	16	5	4	7
Retail trade.....	3	1	-	26	8	2	-	9	3	4	14	3	2	9
Other industries.....	3	1	-	2	-	2	-	1	1	1	6	1	-	5
Sales workers.....	32	2	5	10	-	4	-	8	3	3	8	2	2	2
Retail trade.....	22	2	4	2	-	4	-	5	-	1	5	1	2	2
Other industries.....	10	-	1	8	-	3	-	4	-	1	3	1	1	1
Clerical and kindred workers.....	1,157	135	461	17	-	6	-	1	-	10	30	14	9	7
Bookkeepers.....	130	96	13	-	-	-	-	-	-	-	1	1	-	-
Secretaries, stenographers, and typists.....	336	9	300	1	-	-	-	-	-	9	28	12	9	7
Other clerical and kindred workers.....	691	30	148	16	-	6	-	1	-	1	1	1	-	-
Craftsmen and kindred workers.....	28	3	5	784	244	106	27	175	60	172	95	55	14	26
Carpenters.....	-	-	-	69	66	1	-	-	-	2	4	1	1	2
Construction craftsmen, except carpenters.....	4	-	-	175	160	5	1	4	-	5	14	9	1	4
Foremen, n.e.c.....	11	1	2	100	1	90	-	2	2	4	15	7	5	3
Machinists.....	3	-	1	28	6	2	21	1	1	-	17	16	1	1
Mechanics and repairmen.....	4	-	1	176	6	4	3	155	2	6	15	7	-	8
Metal craftsmen, except mechanics and machinists.....	-	-	-	53	3	-	-	4	45	1	8	6	-	2
Other craftsmen and kindred workers.....	6	1	2	183	8	4	1	6	10	154	22	9	7	6
Operatives, except transport.....	15	1	3	82	10	3	7	22	4	36	800	352	278	172
Durable goods manufacturing.....	8	1	1	44	6	2	7	9	4	16	367	338	12	17
Nondurable goods manufacturing.....	5	-	1	21	4	1	-	6	-	10	286	7	262	17
Other industries.....	2	-	1	17	-	-	-	7	-	10	147	7	4	138
Transport equipment operatives.....	2	-	1	14	4	-	1	5	-	4	9	3	-	6
Truck drivers.....	1	-	1	6	3	-	-	1	-	2	4	2	-	2
Deliverymen and routemen.....	1	-	1	2	-	-	1	1	-	2	3	-	-	3
Other transport equipment operatives.....	-	-	-	6	1	-	-	3	-	2	2	1	-	1
Laborers, except farm.....	27	-	9	29	12	4	-	7	2	4	43	18	16	9
Construction.....	1	-	15	8	2	2	-	2	1	2	4	3	1	-
Freight, stock, and material handlers.....	19	-	7	3	-	2	-	1	-	-	14	2	10	2
Other laborers.....	7	-	2	11	4	-	-	4	1	2	25	13	5	7
Farmers and farm managers.....	1	-	-	3	3	-	-	-	-	-	2	-	-	2
Farm laborers and farm foremen.....	3	1	1	-	-	-	-	-	-	-	3	-	-	2
Farm laborers, unpaid family workers.....	1	1	-	-	-	-	-	-	-	-	1	-	-	-
Farm laborers, except unpaid, and farm foremen.....	2	-	1	-	-	-	-	-	-	-	-	-	-	-
Service workers, except private household.....	24	2	8	31	7	3	-	8	1	12	10	2	4	4
Cleaning service workers.....	5	-	22	22	6	2	-	7	1	6	8	2	2	4
Food service workers.....	1	1	1	4	1	1	-	-	-	2	-	-	-	-
Health service workers.....	6	-	3	1	-	-	-	-	-	1	-	-	-	-
Personal service.....	2	1	1	2	-	-	-	1	-	1	1	-	-	1
Protective service workers.....	2	-	-	2	-	-	-	-	-	2	1	-	-	1
Private household workers.....	5	-	1	-	-	-	-	-	-	-	3	-	2	1
- Represents zero.														

- Represents zero.

Table 37. Occupation of Persons Employed in Both CPS and Census by Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Census classification—Continued															
	Transport equipment operatives			Laborers, except farm			Farmers and farm managers	Farm laborers and farm foremen		Service workers, except private household					Private household workers	
	Total	Truck drivers	Deliverymen and routemen	Total	Construction	Freight, stock and material handlers		Farm laborers, unpaid family workers	Farm laborers, except unpaid, and farm foremen	Total	Cleaning service workers	Food service workers	Health service workers	Personal service workers		Protective service workers
80TH SEXES—Continued																
Employed, 16 years old and over.....	311	178	42	329	60	147	159	6	82	785	190	247	107	125	92	119
Professional, technical, and kindred workers..	3	-	2	-	-	-	1	-	1	19	-	1	10	2	3	-
Engineers.....	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Physicians, dentists, and related practitioners.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Health workers, except practitioners.....	1	-	1	-	-	-	-	-	-	12	-	1	9	1	-	-
Registered nurses.....	-	-	-	-	-	-	-	-	-	7	-	5	1	1	-	-
Teachers, elementary and secondary schools..	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-
Other professional, technical, and kindred workers.....	1	-	-	-	-	-	-	-	-	6	-	-	1	-	3	-
Managers and administrators, except farm.....	10	5	3	7	-	2	2	-	-	28	12	12	-	4	2	-
Salaries.....	4	1	1	3	-	2	2	-	-	14	6	3	-	2	1	-
Self-employed.....	6	4	2	4	-	-	-	-	-	14	-	9	-	2	1	-
Retail trade.....	-	-	-	-	-	-	-	-	-	13	-	9	-	1	-	-
Other industries.....	6	4	2	4	-	-	-	-	-	1	-	-	-	1	-	-
Sales workers.....	6	2	4	4	-	4	-	-	1	10	-	7	-	1	-	-
Retail trade.....	1	-	1	2	-	2	-	-	1	9	-	6	-	1	-	-
Other industries.....	5	2	3	2	-	-	-	-	-	1	-	1	-	-	-	-
Clerical and kindred workers.....	9	2	3	28	-	25	1	-	-	18	-	5	4	3	-	1
Bookkeepers.....	-	-	-	1	-	1	-	-	-	4	-	2	-	-	-	1
Secretaries, stenographers, and typists.....	-	-	-	-	-	-	-	-	-	4	-	-	-	-	-	-
Other clerical and kindred workers.....	9	2	3	27	-	24	1	-	-	13	-	3	4	3	-	-
Craftsmen and kindred workers.....	11	6	1	34	17	5	1	2	2	13	7	3	-	-	1	-
Carpenters.....	-	-	-	4	3	-	1	-	-	1	1	1	-	-	-	-
Construction craftsmen, except carpenters..	3	2	-	12	8	1	-	-	1	2	1	1	-	-	-	-
Foremen, n.e.c.....	2	-	1	5	3	1	-	-	1	1	1	-	-	-	-	-
Machinists.....	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-
Mechanics and repairmen.....	3	2	-	6	1	3	-	-	-	5	4	-	-	-	1	-
Metal craftsmen, except mechanics and machinists.....	-	-	-	3	1	-	-	-	-	1	-	1	-	-	-	-
Other craftsmen and kindred workers.....	3	2	-	3	1	-	-	-	-	2	1	-	-	-	-	-
Operatives, except transport.....	10	2	2	41	1	22	1	-	2	11	4	2	1	1	-	1
Durable goods manufacturing.....	3	-	2	20	1	9	-	-	-	5	3	-	-	-	-	-
Nondurable goods manufacturing.....	2	-	-	11	-	9	-	-	1	3	-	2	-	-	-	-
Other industries.....	5	2	-	10	-	4	1	-	1	3	1	-	1	1	-	-
Transport equipment operatives.....	222	133	21	14	4	6	1	-	-	3	2	1	-	-	-	-
Truck drivers.....	121	99	20	9	3	5	1	-	-	-	-	-	-	-	-	-
Deliverymen and routemen.....	37	32	1	1	-	-	-	-	-	-	-	-	-	-	-	-
Other transport equipment operatives.....	64	2	-	4	1	1	-	-	-	3	2	1	-	-	-	-
Laborers, except farm.....	27	20	3	184	36	80	3	-	4	20	17	-	1	1	-	1
Construction.....	8	8	-	33	30	1	1	-	1	2	2	-	-	-	-	-
Freight, stock, and material handlers.....	8	3	2	82	-	75	1	-	1	4	2	-	1	-	-	-
Other laborers.....	11	9	1	69	6	4	1	-	2	14	13	-	-	1	-	1
Farmers and farm managers.....	5	3	1	1	-	-	146	1	13	1	1	-	-	-	-	-
Farm laborers and farm foremen.....	2	2	-	4	1	-	3	5	56	1	1	-	-	-	-	-
Farm laborers, unpaid family workers.....	-	-	-	-	-	-	1	4	4	-	-	-	-	-	-	-
Farm laborers, except unpaid, and farm foremen.....	2	2	-	4	1	-	2	1	52	1	1	-	-	-	-	-
Service workers, except private household....	6	3	2	11	1	3	-	-	1	649	144	214	90	109	85	8
Cleaning service workers.....	2	2	-	10	1	3	-	-	1	128	120	1	1	1	1	1
Food service workers.....	3	1	1	1	1	-	-	-	-	223	4	212	3	3	-	2
Health service workers.....	-	-	-	-	-	-	-	-	1	88	-	84	2	-	-	1
Personal service.....	-	-	-	-	-	-	-	-	-	123	15	1	1	105	1	5
Protective service workers.....	1	-	1	-	-	-	-	-	-	87	3	-	1	-	83	-
Private household workers.....	-	-	-	1	-	-	-	-	2	12	2	2	1	4	1	108

- Represents zero.

*Includes allocated cases not shown separately.

Table 37. Occupation of Persons Employed in Both CPS and Census by Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Census classification									
	Total employed	Professional, technical, and kindred workers					Managers and administrators, except farm			Sales workers
		Total	Engineers	Physicians, dentists, and related practitioners	Health workers, except practitioners		Teachers, elementary and secondary	Total	Salaried	Self-employed
					Registered nurses	Other				
MALE										
Employed, 16 years old and over.....	4,928	727	133	47	4	14	84	578	482	96
Professional, technical, and kindred workers..	694	580	100	44	2	10	78	30	27	3
Engineers.....	130	101	85	-	-	-	-	9	9	2
Physicians, dentists, and related practitioners.....	47	44	-	44	-	-	-	2	1	1
Teachers, elementary and secondary schools..	78	75	-	-	-	-	71	-	-	-
Other professional, technical, and kindred workers.....	439	360	15	-	2	10	7	19	17	2
Managers and administrators, except farm....	770	62	13	-	-	1	5	455	376	79
Salaried.....	586	56	12	-	-	1	5	366	362	4
Self-employed.....	184	6	1	-	-	-	-	89	14	75
Retail trade.....	87	-	1	-	-	-	-	57	4	13
Other industries.....	97	6	1	-	-	-	-	32	10	22
Sales workers.....	306	11	3	1	-	-	-	15	11	4
Clerical and kindred workers.....	368	26	3	-	-	1	1	20	20	-
Craftsmen and kindred workers.....	1,001	31	12	2	2	1	-	36	31	5
Carpenters.....	81	-	-	-	-	-	-	2	1	1
Construction craftsmen, except carpenters...	220	3	2	-	-	-	-	9	7	-
Foremen, n.e.c.....	146	4	1	-	-	-	-	14	13	1
Machinists.....	52	2	1	-	-	-	-	1	1	2
Mechanics and repairmen.....	221	8	1	-	-	-	-	5	4	1
Metal craftsmen, except mechanics and machinists.....	66	1	1	-	-	-	-	2	2	-
Other craftsmen and kindred workers.....	215	13	7	1	-	1	-	3	3	-
Operatives, except transport.....	603	7	1	-	-	-	-	9	7	2
Durable goods manufacturing.....	316	5	1	-	-	-	-	3	2	1
Nondurable goods manufacturing.....	146	1	-	-	-	-	-	3	2	1
Other industries.....	141	1	-	-	-	-	-	3	3	-
Transport equipment operatives.....	263	-	-	-	-	-	-	4	4	8
Truck drivers.....	144	-	-	-	-	-	-	1	1	1
Other transport equipment operatives.....	119	-	-	-	-	-	-	3	3	6
Laborers, except farm.....	347	6	-	-	-	1	-	5	4	1
Construction.....	65	-	-	-	-	-	-	-	-	-
Freight, stock, and material handlers.....	134	2	-	-	-	-	-	2	2	7
Other laborers.....	148	4	-	-	-	1	-	3	2	1
Farmers and farm managers.....	175	-	-	-	-	-	-	1	-	1
Farm laborers and farm foremen.....	65	1	-	-	-	-	-	-	-	1
Service workers, except private household....	332	3	1	-	-	-	-	3	2	1
Protective service workers.....	91	2	1	-	-	-	-	-	-	-
Other service workers.....	241	1	-	-	-	-	-	3	2	1
Private household workers.....	4	-	-	-	-	-	-	-	-	-

- Represents zero.

Table 37. Occupation of Persons Employed in Both CPS and Census by Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Census classification—Continued													
	Clerical and kindred workers			Craftsmen and kindred workers							Operatives, except transport			
	Total	Book-keepers	Secretaries, stenographers and typists	Total	Construction craftsmen	Foremen, n.e.c.	Machinists	Mechanics and repairmen	Metal craftsmen, except mechanics and repairmen	Other craftsmen and kindred workers	Total	Durable goods manufacturing	Nondurable goods manufacturing	Other industries
MALE—Continued														
Employed, 16 years old and over.....	396	30	58	1,024	291	149	36	243	72	233	656	324	144	188
Professional, technical, and kindred workers...														
Engineers.....	27	5	1	26	2	4	-	8	1	11	13	6	5	2
Physicians, dentists, and related practitioners.....	4	-	-	10	-	3	-	2	-	5	3	2	1	-
Teachers, elementary and secondary schools...	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Other professional, technical, and kindred workers.....	1	1	-	1	-	-	-	-	-	1	-	-	-	-
Managers and administrators, except farm.....	21	4	1	15	2	1	-	6	1	5	10	4	4	2
Salaries.....	38	5	6	70	11	28	1	13	4	13	29	8	5	16
Self-employed.....	35	4	6	44	3	26	1	4	1	9	15	5	3	7
Retail trade.....	3	1	-	26	8	2	-	9	3	4	14	3	2	9
Other industries.....	-	-	-	2	-	-	-	1	-	1	6	1	-	5
Sales workers.....	3	1	-	24	8	2	-	8	3	3	8	2	2	4
Clerical and kindred workers.....	11	-	2	10	-	4	-	5	-	1	5	1	2	2
Craftsmen and kindred workers.....	251	16	31	12	-	4	-	1	-	7	15	7	6	2
Carpenters.....	26	2	5	762	243	101	27	175	60	156	80	48	7	25
Construction craftsmen, except carpenters...	-	1	-	69	66	1	-	-	-	2	4	1	1	2
Foremen, n.e.c.....	4	-	-	174	159	5	1	4	-	5	13	8	1	4
Machinists.....	11	1	2	95	1	85	1	2	2	4	12	6	3	3
Mechanics and repairmen.....	2	-	4	28	-	2	21	4	1	-	15	14	-	1
Metal craftsmen, except mechanics and machinists.....	4	-	1	175	6	4	3	155	2	5	14	6	-	8
Other craftsmen and kindred workers.....	-	-	-	53	3	-	-	4	45	1	6	5	-	1
Operatives, except transport.....	5	1	2	168	8	4	1	6	10	139	16	8	2	6
Durable goods manufacturing.....	8	-	1	69	9	2	7	21	4	26	453	231	101	121
Nondurable goods manufacturing.....	4	-	-	39	6	2	7	8	4	12	240	222	3	15
Other industries.....	2	-	1	14	-	-	-	7	-	7	109	4	96	9
Transport equipment operatives.....	2	-	1	14	4	-	1	5	-	4	8	3	-	5
Truck drivers.....	1	-	-	6	3	-	-	1	-	2	4	2	-	2
Other transport equipment operatives.....	1	-	1	8	1	-	1	4	-	2	4	1	-	3
Laborers, except farm.....	23	-	8	29	12	4	-	7	2	4	41	18	14	9
Construction.....	1	-	-	15	8	2	-	2	1	2	4	3	1	-
Freight, stock, and material handlers.....	15	-	6	3	-	2	-	1	-	2	13	2	9	2
Other laborers.....	7	-	2	11	4	-	-	4	1	2	24	13	4	7
Farmers and farm managers.....	1	-	-	3	3	-	-	-	-	-	2	-	-	2
Farm laborers and farm foremen.....	2	-	1	-	-	-	-	-	-	-	1	-	1	-
Service workers, except private household.....	6	2	2	29	7	2	-	8	1	11	9	2	3	4
Protective service workers.....	1	-	-	2	-	-	-	-	-	2	1	-	1	-
Other service workers.....	5	2	2	27	7	2	-	8	1	9	8	2	2	4
Private household workers.....	1	-	-	-	-	-	-	-	-	-	-	-	-	-

- Represents zero.

Table 37. Occupation of Persons Employed in Both CPS and Census by Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in the 1970 census 20-percent sample households)

CPS classification	Census classification—Continued															
	Transport equipment operatives			Laborers, except farm			Farmers and farm managers	Farm laborers and farm foremen		Service workers, except private household						Private household workers
	Total	Truck drivers	Delivery-men and routemen	Total	Construction	Freight, stock and material handlers		Farm laborers, unpaid family workers	Farm laborers, except unpaid, and farm foremen	Total ¹	Cleaning service workers	Food service workers	Health service workers	Personal service workers	Protective service workers	
MALE—Continued																
Employed, 16 years old and over.....	298	149	72	310	60	135	156	3	75	338	132	57	11	34	87	3
Professional, technical, and kindred workers..	3	-	2	-	-	-	1	-	1	6	-	-	1	-	3	-
Engineers.....	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Physicians, dentists, and related practitioners.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Teachers, elementary and secondary schools..	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Other professional, technical, and kindred workers.....	2	-	1	-	-	-	-	-	1	6	-	-	1	-	3	-
Managers and administrators, except farm.....	10	5	3	7	-	2	2	-	-	22	6	8	-	3	1	-
Salaries.....	4	1	1	3	-	2	2	-	-	12	6	2	-	1	1	-
Self-employed.....	6	4	2	4	-	-	-	-	-	10	-	6	-	2	-	-
Retail trade.....	-	-	-	-	-	-	-	-	-	9	-	6	-	1	-	-
Other industries.....	6	4	2	4	-	-	-	-	-	1	-	-	-	1	-	-
Sales workers.....	6	2	4	3	-	3	-	-	1	2	-	1	-	-	-	-
Clerical and kindred workers.....	8	2	3	24	-	21	1	-	-	2	-	-	-	1	-	-
Craftsmen and kindred workers.....	11	6	1	34	17	5	1	-	2	12	9	-	-	-	1	-
Carpenters.....	-	-	-	4	3	-	1	-	-	1	1	-	-	-	-	-
Construction craftsmen, except carpenters....	3	2	-	12	8	1	-	-	1	1	1	-	-	-	-	-
Foremen, n.e.c.....	2	-	1	5	3	1	-	-	1	1	1	-	-	-	-	-
Machinists.....	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-
Mechanics and repairmen.....	3	2	-	6	1	3	-	-	-	5	4	-	-	-	1	-
Metal craftsmen, except mechanics and machinists.....	-	-	-	3	1	-	-	-	-	1	1	-	-	-	-	-
Other craftsmen and kindred workers.....	3	2	-	3	1	-	-	-	-	2	1	-	-	-	-	-
Operatives, except transport.....	10	2	2	35	1	18	1	-	2	6	3	-	-	1	-	1
Durable goods manufacturing.....	3	-	2	18	1	8	-	-	-	4	3	-	-	-	-	-
Nondurable goods manufacturing.....	2	-	-	8	-	6	-	-	1	1	-	-	-	-	-	-
Other industries.....	5	2	-	9	-	4	1	-	1	1	-	-	-	1	-	-
Transport equipment operatives.....	211	104	51	13	4	6	1	-	-	2	2	-	-	-	-	-
Truck drivers.....	120	98	20	9	3	5	1	-	-	-	-	-	-	-	-	-
Other transport equipment operatives.....	91	6	31	4	1	1	-	-	-	2	2	-	-	-	-	-
Laborers, except farm.....	27	20	3	180	36	77	2	-	4	19	17	-	-	1	-	1
Construction.....	8	8	-	33	30	1	1	-	1	2	2	-	-	-	-	-
Freight, stock, and material handlers.....	8	3	2	79	-	72	1	-	1	3	2	-	-	3	-	-
Other laborers.....	11	9	1	68	6	4	-	-	2	14	13	-	-	1	-	1
Farmers and farm managers.....	5	3	1	1	-	-	145	1	13	1	1	-	-	-	-	-
Farm laborers and farm foremen.....	2	2	-	3	1	-	2	2	50	1	1	-	-	-	-	-
Service workers, except private household....	5	3	2	10	1	3	-	-	1	264	93	48	10	28	82	-
Protective service workers.....	1	-	1	-	-	-	-	-	-	64	3	-	-	1	-	-
Other service workers.....	4	3	1	10	1	3	-	-	1	180	90	48	9	28	80	2
Private household workers.....	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-

- Represents zero.

¹Includes allocated cases not shown separately.

Table 37. Occupation of Persons Employed in Both CPS and Census by Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

Census classification															
CPS classification	Professional, technical, and kindred workers										Managers and administrators, except farm			Sales workers	
	Total employed	Total	Engineers	Physicians, dentists, and related practitioners	Health workers, except practitioners			Teachers, elementary and secondary	Total	Salaried	Self-employed	Total	Retail trade		
					Registered nurses	Other									
FEMALE															
Employed, 16 years old and over.....	2,853	494	2	2	80	26	211	102	83	19	179	145			
Professional, technical, and kindred workers..	475	413	2	2	66	19	195	7	7	-	4	1			
Health workers.....	100	85	-	-	66	17	-	1	1	-	1	-			
Registered nurses.....	74	65	-	-	65	-	-	-	-	-	-	-			
Teachers, elementary and secondary schools..	201	192	-	-	-	1	187	-	-	-	2	1			
Other professional, technical, and kindred workers.....	174	136	2	2	-	1	8	6	6	-	1	-			
Managers and administrators, except farm.....	130	8	-	-	-	1	3	60	51	9	15	13			
Salaried.....	105	7	-	-	-	1	2	50	50	-	5	4			
Self-employed.....	25	1	-	-	-	-	1	10	1	9	10	9			
Sales workers.....	150	4	-	-	1	-	-	-	-	-	116	99			
Retail trade.....	130	4	-	-	1	-	-	-	-	-	101	98			
Clerical and kindred workers.....	1,043	45	-	-	3	3	10	21	18	3	29	17			
Bookkeepers.....	129	6	-	-	-	-	-	1	1	-	2	2			
Secretaries, stenographers, and typists.....	355	10	-	-	1	1	1	3	3	-	3	1			
Other clerical and kindred workers.....	559	29	-	-	2	2	9	17	14	3	24	14			
Craftsmen and kindred workers.....	42	2	-	-	-	-	-	-	-	-	-	-			
Operatives, except transport.....	383	1	-	-	-	-	-	2	1	1	2	2			
Transport equipment operatives.....	16	-	-	-	-	-	-	-	-	-	2	2			
Laborers, except farm.....	18	-	-	-	-	-	-	3	-	3	3	3			
Farmers and farm managers.....	1	-	-	-	-	-	-	-	-	-	-	-			
Farm laborers and farm foremen.....	14	-	-	-	-	-	-	-	-	-	-	-			
Service workers, except private household....	451	19	-	-	10	3	2	9	6	3	7	7			
Cleaning service workers.....	50	1	-	-	-	-	1	1	1	-	1	1			
Food service workers.....	197	3	-	-	-	1	1	4	1	3	6	6			
Health and personal service workers.....	98	13	-	-	10	2	-	-	-	-	-	-			
Private household workers.....	130	2	-	-	-	-	1	-	-	-	1	1			

- Represents zero.

Table 37. Occupation of Persons Employed in Both CPS and Census by Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Census classification--Continued													
	Clerical and kindred workers				Craftsmen and kindred workers						Operatives, except transport			
	Total	Book-keepers	Secretaries, stenographers, and typists	Total	Construction craftsmen	Foremen, n.e.c.	Machinists	Mechanics and repairmen	Metal craftsmen, except mechanics and repairmen	Other craftsmen and kindred workers	Total	Durable goods manufacturing	Nondurable goods manufacturing	Other industries
FEMALE--Continued														
Employed, 16 years old and over.....	1,031	144	464	47	2	13	-	2	-	30	392	135	194	63
Professional, technical, and kindred workers..	32	7	11	1	-	-	-	1	-	-	5	1	1	3
Health workers.....	2	-	2	-	-	-	-	-	-	-	-	-	-	-
Registered nurses.....	1	-	1	-	-	-	-	-	-	-	-	-	-	-
Teachers, elementary and secondary schools..	4	-	1	-	-	-	-	-	-	-	2	1	-	1
Other professional, technical, and kindred workers.....	26	7	8	1	-	-	-	1	-	-	3	-	1	2
Managers and administrators, except farm.....	36	13	10	4	-	4	-	-	-	-	1	-	1	-
Salaries.....	36	13	10	4	-	4	-	-	-	-	1	-	1	-
Self-employed.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sales workers.....	21	2	3	-	-	-	-	-	-	-	-	-	-	-
Retail trade.....	17	2	3	-	-	-	-	-	-	-	-	-	-	-
Clerical and kindred workers.....	906	119	430	5	-	2	-	-	-	3	15	7	3	5
Bookkeepers.....	118	86	13	-	-	-	-	-	-	-	1	1	-	-
Secretaries, stenographers, and typists.....	332	9	296	1	-	-	-	-	-	1	1	1	-	-
Other clerical and kindred workers.....	456	24	121	4	-	2	-	-	-	2	13	5	3	5
Craftsmen and kindred workers.....	2	1	-	22	1	5	-	-	-	16	15	7	7	1
Operatives, except transport.....	7	1	2	13	1	1	-	1	-	10	347	120	177	50
Transport equipment operatives.....	-	-	-	-	-	-	-	-	-	-	1	-	-	1
Laborers, except farm.....	4	-	1	-	-	-	-	-	-	-	2	-	2	-
Farmers and farm managers.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and farm foremen.....	1	1	-	-	-	-	-	-	-	-	2	-	-	2
Service workers, except private household.....	18	-	6	2	-	1	-	-	-	1	1	-	1	-
Cleaning service workers.....	4	-	1	1	-	1	-	-	-	-	1	-	1	-
Food service workers.....	8	-	2	1	-	-	-	-	-	1	-	-	-	-
Health and personal service workers.....	4	-	2	-	-	-	-	-	-	-	-	-	-	-
Private household workers.....	4	-	1	-	-	-	-	-	-	-	3	-	2	1

- Represents zero.

Table 37. Occupation of Persons Employed in Both CPS and Census by Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Census classification—Continued															
	Transport equipment operatives			Laborers, except farm			Farmers and farm managers	Farm laborers and farm foremen		Service workers, except private household						Private household workers
	Total	Truck drivers	Delivery-men and routemen	Total	Construction	Freight, stock and material handlers		Farm laborers, except unpaid family workers	Farm laborers, except unpaid, and farm foremen	Total ¹	Cleaning service workers	Food service workers	Health service workers	Personal service workers	Protective service workers	
FEMALE—Continued																
Employed, 16 years old and over.....	13	2	1	19	-	12	3	3	7	447	54	188	96	91	4	116
Professional, technical, and kindred workers..	-	-	-	-	-	-	-	-	-	13	-	1	9	2	-	-
Health workers.....	-	-	-	-	-	-	-	-	-	11	-	1	8	1	-	-
Registered nurses.....	-	-	-	-	-	-	-	-	-	7	-	-	5	1	-	-
Teachers, elementary and secondary schools..	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-
Other professional, technical, and kindred workers.....	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-
Managers and administrators, except farm.....	-	-	-	-	-	-	-	-	-	6	-	4	-	1	-	-
Salaried.....	-	-	-	-	-	-	-	-	-	2	-	1	-	1	-	-
Self-employed.....	-	-	-	-	-	-	-	-	-	4	-	3	-	-	-	-
Sales workers.....	-	-	-	1	-	1	-	-	-	8	-	6	-	1	-	-
Retail trade.....	-	-	-	1	-	1	-	-	-	7	-	5	-	1	-	-
Clerical and kindred workers.....	1	-	-	4	-	4	-	-	-	16	-	5	4	2	-	1
Bookkeepers.....	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Secretaries, stenographers, and typists.....	-	-	-	-	-	-	-	-	-	4	-	2	-	-	-	1
Other clerical and kindred workers.....	1	-	-	4	-	4	-	-	-	11	-	3	4	2	-	-
Craftsmen and kindred workers.....	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-	-
Operatives, except transport.....	-	-	-	6	-	4	-	-	-	5	1	2	1	-	-	-
Transport equipment operatives.....	11	2	1	1	-	-	-	-	-	1	-	1	-	-	-	-
Laborers, except farm.....	-	-	-	4	-	3	1	-	-	1	-	-	1	-	-	-
Farmers and farm managers.....	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Farm laborers and farm foremen.....	-	-	-	1	-	-	1	-	3	-	-	-	-	-	-	-
Service workers, except private household.....	1	-	-	1	-	-	-	-	-	385	51	166	80	81	3	8
Cleaning service workers.....	-	-	-	1	-	-	-	-	-	40	35	1	1	1	-	-
Food service workers.....	1	-	-	-	-	-	-	-	-	172	3	164	2	3	-	2
Health and personal service workers.....	-	-	-	-	-	-	-	-	-	80	2	-	76	-	-	1
Private household workers.....	-	-	-	1	-	-	-	-	1	11	2	2	1	4	1	107

- Represents zero.

¹Includes allocated cases not shown separately.

Table 38. Occupation of Persons Employed in Both CPS and Census by Race and Sex

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Census classification											
	Total employed	Professional, technical, and kindred workers			Managers and administrators, except farm		Sales workers		Clerical and kindred workers		Craftsmen and kindred workers	
		Total	Health workers	Teachers, elementary and secondary	Salaried	Self-employed	Total	Retail trade	Total	Secretaries, stenographers, and typists	Total	Mechanics and repairmen
WHITE												
Male employed, 16 years old and over.....	4,577											
Professional, technical, and kindred workers.....	670	59	83	442	123	360	145	369	12	981	232	
Health workers.....	558	53	78	26	3	7	1	27	1	26	8	
Teachers, elementary and secondary.....	61	53	71	1	1	1	-	1	-	-	-	
Other professional, technical, and kindred workers.....	78	-	-	-	-	-	-	-	-	1	-	
Managers and administrators, except farm.....	531	428	7	25	2	6	1	25	1	25	8	
Salaried.....	748	59	4	370	76	72	31	38	3	69	12	
Self-employed.....	574	53	4	356	4	49	17	35	3	43	3	
Clerical and kindred workers.....	174	6	-	114	72	23	14	3	-	26	9	
Sales workers.....	303	11	-	11	4	241	96	11	-	10	5	
Craftsmen and kindred workers.....	336	23	1	19	-	9	2	232	7	10	1	
Construction craftsmen.....	960	31	-	31	5	6	1	24	-	736	169	
Foremen, n.e.c.....	281	3	-	8	3	-	-	3	-	230	3	
Mechanics and repairmen.....	140	4	-	13	1	1	-	10	-	92	2	
Other craftsmen and kindred workers.....	213	8	-	4	1	1	1	4	-	170	150	
Operatives, except transport.....	326	16	2	6	2	4	1	7	-	244	14	
Durable goods manufacturing.....	532	6	-	2	2	2	2	7	-	64	19	
Nondurable goods manufacturing.....	282	4	-	2	1	-	-	4	-	36	7	
Other industries.....	124	1	-	2	1	2	2	2	-	14	5	
Transport equipment operatives.....	126	1	-	2	-	-	-	1	-	14	7	
Truck drivers.....	237	-	-	4	-	8	1	2	-	13	4	
Other transport equipment operatives.....	127	-	-	1	-	2	-	1	-	6	1	
Laborers, except farm.....	110	-	-	3	-	6	1	1	-	7	3	
Farmers and farm managers.....	279	5	-	4	1	10	9	19	-	25	6	
Farm laborers and farm foremen.....	168	-	-	-	1	2	1	1	-	3	-	
Service workers, except private household.....	54	1	-	-	-	1	1	2	-	-	-	
Cleaning service workers.....	288	3	-	1	1	2	1	6	1	25	8	
Protective service workers.....	108	-	-	1	-	1	1	1	-	19	7	
Other service workers.....	85	2	-	-	-	-	-	1	-	2	-	
Private household workers.....	95	1	-	-	1	1	1	4	1	4	1	
Female employed, 16 years old and over.....	2	-	-	-	-	-	-	-	-	-	-	
Professional, technical, and kindred workers.....	2,554	451	188	80	18	174	143	981	376	39	1	
Health workers.....	434	378	173	6	-	4	1	31	10	-	-	
Teachers, elementary and secondary.....	97	82	167	1	-	1	1	2	2	-	-	
Other professional, technical, and kindred workers.....	179	171	167	-	-	2	1	4	-	-	-	
Managers and administrators, except farm.....	158	125	6	5	-	1	-	25	8	-	-	
Sales workers.....	127	8	3	51	9	15	13	35	10	3	-	
Retail trade.....	144	4	-	-	-	113	97	18	1	-	-	
Other industries.....	125	4	-	-	-	96	14	14	1	-	-	
Clerical and kindred workers.....	19	-	-	-	-	14	1	4	-	-	-	
Secretaries, stenographers, and typists.....	993	44	10	17	3	28	18	863	349	5	-	
Other clerical workers.....	127	6	-	3	-	2	2	116	11	-	-	
Craftsmen and kindred workers.....	340	10	1	3	-	3	2	317	278	1	-	
Operatives, except transport.....	526	28	9	13	3	23	15	430	60	4	-	
Transport equipment operatives.....	38	2	-	-	-	-	-	2	-	18	1	
Laborers, except farm.....	339	1	-	1	-	2	2	7	1	12	-	
Farmers and farm managers.....	15	-	-	-	-	2	2	-	-	-	-	
Farm laborers and farm foremen.....	18	-	-	-	3	3	3	4	1	-	-	
Service workers, except private household.....	1	-	-	-	-	-	-	-	-	-	-	
Food service workers.....	13	-	-	-	-	-	-	1	-	-	-	
Health and personal service workers.....	362	13	1	5	3	6	6	16	3	1	-	
Private household workers.....	165	2	1	1	3	5	5	8	1	1	-	
	162	11	8	3	-	1	-	4	2	-	-	
	70	1	1	-	-	1	1	-	1	-	-	

- Represents zero.

Table 38. Occupation of Persons Employed in Both CPS and Census by Race and Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

Census classification--Continued												
CPS classification	Operatives, except transport		Transport equipment operatives		Laborers, except farm		Farmers and farm managers	Farm laborers and farm foremen	Service workers, except private household			Private household workers
	Total	Manu- facturing	Total	Truck drivers	Total	Manu- facturing			Total	Food service workers	Health and personal service workers	
WHITE--Continued												
Male employed, 16 years old and over.....	584	412	269	130	247	70	150	65	288	50	38	2
Professional, technical, and kindred workers..	13	11	3	-	-	-	1	1	5	-	1	-
Health workers.....	-	-	1	-	-	-	-	-	1	-	1	-
Teachers, elementary and secondary.....	-	-	-	-	-	-	1	-	-	-	-	-
Other professional, technical, and kindred workers.....	13	11	2	-	-	-	-	1	4	-	-	-
Managers and administrators, except farm.....	28	13	10	5	5	2	1	-	20	7	3	-
Salaries.....	15	8	4	1	2	1	1	-	12	2	1	-
Self-employed.....	13	5	6	4	3	1	-	-	8	5	2	-
Sales workers.....	3	1	6	2	3	-	-	1	2	1	-	-
Clerical and kindred workers.....	14	12	7	2	20	4	-	-	2	-	1	-
Craftsmen and kindred workers.....	73	51	11	6	31	8	1	1	10	1	-	-
Construction craftsmen.....	15	10	3	2	13	1	1	1	1	-	-	-
Foremen, n.e.c.....	11	8	2	2	5	1	-	-	1	-	-	-
Mechanics and repairmen.....	12	5	3	2	6	-	-	-	4	-	-	-
Other craftsmen and kindred workers.....	35	28	3	2	7	6	-	-	4	1	-	-
Operatives, except transport.....	405	291	9	1	27	20	-	2	2	-	-	-
Durable goods manufacturing.....	215	201	3	-	15	14	-	-	2	-	-	-
Nondurable goods manufacturing.....	93	84	2	-	6	6	-	1	-	-	-	-
Other industries.....	97	6	4	-	6	-	-	1	-	-	-	-
Transport equipment operatives.....	6	2	193	94	8	2	1	-	2	-	-	-
Truck drivers.....	3	2	108	89	5	-	1	-	-	-	-	-
Other transport equipment operatives.....	3	-	85	5	3	2	-	-	2	-	-	-
Laborers, except farm.....	32	25	21	15	141	30	2	4	14	-	-	1
Farmers and farm managers.....	2	-	4	2	1	1	142	11	1	-	-	-
Farm laborers and farm foremen.....	1	1	1	1	2	1	2	43	1	-	-	-
Service workers, except private household.....	7	5	4	2	9	2	-	1	229	41	33	-
Cleaning service workers.....	5	3	1	1	8	-	-	-	72	-	-	-
Protective service workers.....	1	1	1	1	-	-	-	-	78	-	1	-
Other service workers.....	1	1	2	1	1	-	-	1	79	41	32	-
Private household workers.....	-	-	-	-	-	-	-	1	-	-	-	1
Female employed, 16 years old and over....	348	290	11	2	17	6	3	9	363	161	155	60
Professional, technical, and kindred workers..	3	-	-	-	-	-	-	-	12	1	10	-
Health workers.....	-	-	-	-	-	-	-	-	11	1	9	-
Teachers, elementary and secondary.....	1	-	-	-	-	-	-	-	1	-	1	-
Other professional, technical, and kindred workers.....	2	-	-	-	-	-	-	-	-	-	-	-
Managers and administrators, except farm.....	1	1	-	-	-	-	-	-	5	4	1	-
Sales workers.....	-	-	-	-	1	-	-	-	8	6	1	-
Retail trade.....	-	-	-	-	1	-	-	-	7	5	1	-
Other industries.....	-	-	-	-	-	-	-	-	1	1	-	-
Clerical and kindred workers.....	13	8	1	-	4	1	-	-	14	4	5	1
Bookkeepers.....	1	1	-	-	-	-	-	-	1	-	-	-
Secretaries, stenographers, and typists.....	1	1	-	-	-	-	-	-	4	2	-	-
Other clerical workers.....	11	6	1	-	4	1	-	-	9	2	5	-
Craftsmen and kindred workers.....	15	14	-	-	-	-	-	-	1	1	-	-
Operatives, except transport.....	308	263	10	2	4	3	-	-	4	2	1	-
Transport equipment operatives.....	1	-	-	-	1	-	-	-	1	-	-	-
Laborers, except farm.....	2	2	-	-	4	2	1	-	1	-	-	-
Farmers and farm managers.....	-	-	-	-	-	-	1	-	-	-	-	-
Farm laborers and farm foremen.....	2	-	-	-	1	-	1	8	-	-	-	-
Service workers, except private household.....	1	1	-	-	1	-	-	-	310	141	131	6
Food service workers.....	-	-	-	-	-	-	-	-	144	139	2	1
Health and personal service workers.....	-	-	-	-	-	-	-	-	139	1	5	-
Private household workers.....	2	1	-	-	1	-	-	1	7	1	5	53

- Represents zero.

Table 38. Occupation of Persons Employed in Both CPS and Census by Race and Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Census classification												
	Total employed	Professional, technical, and kindred workers			Managers and administrators, except farm		Sales workers		Clerical and kindred workers		Craftsmen and kindred workers		
		Total	Health workers	Teachers, elementary and secondary	Salaried	Self-employed	Total	Retail trade	Total	Secretaries, stenographers, and typists	Total	Mechanics and repairmen	
NEGRO													
Male employed, 16 years old and over.....	314	21	2	1	6	1		2	2	23	-	39	10
Professional, technical, and kindred workers..	14	13	2	-	-	-	-	-	-	-	-	-	-
Health workers.....	2	2	-	-	-	-	-	-	-	-	-	-	-
Teachers, elementary and secondary.....	-	-	-	-	-	-	-	-	-	-	-	-	-
Other professional, technical, and kindred workers.....	12	11	-	-	-	-	-	-	-	-	-	-	-
Managers and administrators, except farm.....	13	3	-	1	4	1	-	1	1	1	-	1	1
Salaried.....	10	3	-	1	4	1	-	1	1	1	-	1	1
Self-employed.....	3	-	-	-	-	1	-	-	-	-	-	-	-
Sales workers.....	3	-	-	-	-	-	-	1	1	-	-	-	-
Clerical and kindred workers.....	28	3	-	-	-	-	-	-	-	17	-	1	-
Craftsmen and kindred workers.....	37	-	-	-	-	-	-	-	-	1	-	5	2
Construction craftsmen.....	18	-	-	-	-	-	-	-	-	1	-	1	1
Foremen, n.e.c.....	5	-	-	-	-	-	-	-	-	-	-	3	4
Mechanics and repairmen.....	7	-	-	-	-	-	-	-	-	-	-	4	-
Other craftsmen and kindred workers.....	7	-	-	-	-	-	-	-	-	-	-	5	-
Operatives, except transport.....	71	1	-	-	1	-	-	-	-	1	-	5	2
Durable goods manufacturing.....	34	1	-	-	-	-	-	-	-	-	-	3	1
Nondurable goods manufacturing.....	22	-	-	-	-	-	-	-	-	-	-	2	1
Other industries.....	15	-	-	-	1	-	-	-	-	1	-	-	-
Transport equipment operatives.....	25	-	-	-	-	-	-	-	-	-	-	1	1
Truck drivers.....	17	-	-	-	-	-	-	-	-	-	-	-	-
Other transport equipment operatives.....	8	-	-	-	-	-	-	-	-	-	-	1	1
Laborers, except farm.....	64	1	-	-	-	-	-	-	-	4	-	4	-
Farmers and farm managers.....	7	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and farm foremen.....	11	-	-	-	-	-	-	-	-	-	-	-	-
Service workers, except private household.....	40	-	-	-	1	-	-	-	-	-	-	3	-
Cleaning service workers.....	22	-	-	-	1	-	-	-	-	-	-	2	-
Protective service workers.....	6	-	-	-	-	-	-	-	-	-	-	-	-
Other service workers.....	12	-	-	-	-	-	-	-	-	-	-	1	-
Private household workers.....	-	-	-	-	-	-	-	-	-	-	-	-	-
Female employed, 16 years old and over....	275	39	12	21	3	1		4	4	41	17	6	1
Professional, technical, and kindred workers..	37	31	5	21	1	-	-	-	-	1	-	1	-
Health workers.....	5	5	-	-	-	-	-	-	-	-	-	-	-
Teachers, elementary and secondary.....	21	20	-	20	-	-	-	-	-	-	-	-	-
Other professional, technical, and kindred workers.....	11	6	-	1	1	-	-	-	-	1	-	1	1
Managers and administrators, except farm.....	2	-	-	-	-	-	-	-	-	1	-	-	-
Sales workers.....	5	-	-	-	-	-	-	2	2	3	1	-	-
Retail trade.....	5	-	-	-	-	-	-	2	-	3	1	-	-
Other industries.....	-	-	-	-	-	-	-	-	-	-	-	-	-
Clerical and kindred workers.....	41	1	1	-	1	-	-	1	1	34	15	-	-
Bookkeepers.....	1	-	-	-	-	-	-	-	-	1	-	-	-
Secretaries, stenographers, and typists.....	12	-	-	-	-	-	-	-	-	12	-	-	-
Other clerical workers.....	28	1	1	-	1	-	-	1	1	21	3	-	-
Craftsmen and kindred workers.....	3	-	-	-	-	1	-	-	-	-	-	3	-
Operatives, except transport.....	41	-	-	-	-	-	-	-	-	-	-	1	-
Transport equipment operatives.....	1	-	-	-	-	-	-	-	-	-	-	-	-
Laborers, except farm.....	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers.....	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and farm foremen.....	-	-	-	-	-	-	-	-	-	-	-	-	-
Service workers, except private household.....	86	6	6	-	1	-	-	1	1	2	1	1	-
Food service workers.....	30	1	1	-	1	-	-	1	1	1	1	-	-
Health and personal service workers.....	38	4	4	-	1	-	-	1	1	1	1	-	-
Private household workers.....	59	1	-	-	-	-	-	-	-	-	-	-	-

- Represents zero.

Table 38. Occupation of Persons Employed in Both CPS and Census by Race and Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Census classification--Continued											
	Operatives, except transport		Transport equipment operatives		Laborers, except farm		Farmers and farm managers	Farm laborers and farm foremen	Service workers, except private household			Private household workers
	Total	Manu- facturing	Total	Truck drivers	Total	Manu- facturing			Total	Food service workers	Health and personal service workers	
NEGRO--Continued												
Male employed, 16 years old and over.....	71	56	28	19	59	17	6	13	44	5	7	1
Professional, technical, and kindred workers..	-	-	-	-	-	-	-	-	1	-	-	-
Health workers.....	-	-	-	-	-	-	-	-	-	-	-	-
Teachers, elementary and secondary.....	-	-	-	-	-	-	-	-	-	-	-	-
Other professional, technical, and kindred workers.....	-	-	-	-	-	-	-	-	1	-	-	-
Managers and administrators, except farm.....	-	-	-	-	2	-	1	-	-	-	-	-
Self-employed.....	-	-	-	-	1	-	1	-	-	-	-	-
Sales workers.....	2	2	-	-	1	-	-	-	-	-	-	-
Clerical and kindred workers.....	1	1	1	-	4	-	1	-	-	-	-	-
Craftsmen and kindred workers.....	7	4	-	-	3	-	-	1	1	-	-	-
Construction craftsmen.....	2	1	-	-	3	-	-	-	-	-	-	-
Foremen, n.e.c.....	1	1	-	-	-	-	-	1	-	-	-	-
Mechanics and repairmen.....	2	1	-	-	-	-	-	-	1	-	-	-
Other craftsmen and kindred workers.....	2	1	-	-	-	-	-	-	-	-	-	-
Operatives, except transport.....	48	41	1	1	8	4	1	-	4	-	1	1
Durable goods manufacturing.....	25	24	-	-	3	2	-	-	2	-	-	-
Nondurable goods manufacturing.....	16	16	-	-	2	2	-	-	1	-	-	1
Other industries.....	7	1	1	1	3	-	1	-	1	-	1	-
Transport equipment operatives.....	2	1	17	10	5	2	-	-	-	-	-	-
Truck drivers.....	1	-	12	9	4	2	-	-	-	-	-	-
Other transport equipment operatives.....	1	1	1	1	1	-	-	-	-	-	-	-
Laborers, except farm.....	9	7	6	5	35	11	-	-	5	-	1	-
Farmers and farm managers.....	-	-	1	1	-	-	3	-	-	-	-	-
Farm laborers and farm foremen.....	-	-	1	1	1	-	-	9	-	-	-	-
Service workers, except private household....	2	-	1	1	1	-	-	-	32	5	5	-
Cleaning service workers.....	2	-	1	1	1	-	-	-	15	-	-	-
Protective service workers.....	2	-	1	-	-	-	-	-	6	-	-	-
Other service workers.....	-	-	-	-	-	-	-	-	11	5	5	-
Private household workers.....	-	-	-	-	-	-	-	-	1	-	-	-
Female employed, 16 years old and over....	41	37	2	-	2	1	-	-	81	25	32	55
Professional, technical, and kindred workers..	2	2	-	-	-	-	-	-	1	-	-	-
Health workers.....	-	-	-	-	-	-	-	-	-	-	-	-
Teachers, elementary and secondary.....	1	1	-	-	-	-	-	-	-	-	-	-
Other professional, technical, and kindred workers.....	1	1	-	-	-	-	-	-	1	-	1	-
Managers and administrators, except farm.....	-	-	-	-	-	-	-	-	1	-	-	-
Sales workers.....	-	-	-	-	-	-	-	-	-	-	-	-
Retail trade.....	-	-	-	-	-	-	-	-	-	-	-	-
Other industries.....	-	-	-	-	-	-	-	-	-	-	-	-
Clerical and kindred workers.....	2	2	-	-	-	-	-	-	2	1	1	-
Bookkeepers.....	-	-	-	-	-	-	-	-	-	-	-	-
Secretaries, stenographers, and typists.....	-	-	-	-	-	-	-	-	-	-	-	-
Other clerical workers.....	2	2	-	-	-	-	-	-	2	1	1	-
Craftsmen and kindred workers.....	-	-	-	-	-	-	-	-	-	-	-	-
Operatives, except transport.....	36	32	1	-	2	1	-	-	1	-	-	-
Transport equipment operatives.....	-	-	-	-	-	-	-	-	-	-	-	-
Laborers, except farm.....	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers.....	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and farm foremen.....	-	-	-	-	-	-	-	-	-	-	-	-
Service workers, except private household.....	-	-	1	-	-	-	-	-	23	-	30	2
Food service workers.....	-	-	1	-	-	-	-	-	23	-	3	1
Health and personal service workers.....	-	-	-	-	-	-	-	-	31	-	1	-
Private household workers.....	1	1	-	-	-	-	-	-	4	1	26	53

- Represents zero.

Table 39. Employment Status and Major Occupation Group of Employed Persons
by Race and Sex

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

Census classification																
CPS classification	Total	Employed													Un- employed	Not in labor force
		Total	Profes- sional, technical, and kindred workers	Managers and adminis- trators, except farm	Sales workers	Clerical and kindred workers	Crafts- men and kindred workers	Opera- tives, except transport	Transport equipment opera- tives	Laborers, except farm	Farmers and farm managers	Farm laborers and farm foremen	Service workers, except private house- hold	Private household workers		
TOTAL	14,505	8,241	1,261	694	581	1,513	1,106	1,118	317	368	168	107	862	142	372	5,892
Total, 16 years old and over.....	8,402	7,781	1,221	680	543	1,427	1,071	1,048	311	329	159	88	785	119	110	511
Employed.....	1,227	1,169	993	37	11	59	27	18	3	-	1	1	19	-	6	52
Professional, technical, and kindred workers.....	935	900	70	515	90	74	74	30	10	7	2	-	28	-	6	29
Managers and administrators, except farm. Sales workers.....	503	456	15	15	358	32	10	5	6	4	-	1	10	-	5	42
Clerical and kindred workers.....	1,476	1,411	71	41	38	1,157	17	30	9	28	1	-	18	1	7	58
Craftsmen and kindred workers.....	1,077	1,043	33	36	6	28	784	95	11	34	1	2	13	-	16	18
Operatives, except transport.....	1,062	986	8	11	4	15	82	800	10	41	1	2	11	1	30	46
Transport equipment operatives.....	290	279	-	4	10	2	14	9	222	14	3	-	3	-	4	7
Laborers, except farm.....	408	365	6	8	13	27	29	43	27	184	3	4	20	1	14	29
Farmers and farm managers.....	220	176	-	1	2	1	3	2	5	1	146	14	1	-	3	41
Farm laborers and farm foremen.....	125	79	1	-	1	3	-	3	2	4	3	61	1	-	4	42
Service workers, except private household.....	872	783	22	12	9	24	31	10	6	11	-	1	649	8	12	77
Private household workers.....	207	134	2	-	1	5	-	3	-	1	-	2	12	108	3	70
Unemployed.....	367	105	7	2	9	12	16	21	4	17	-	4	11	2	154	108
Not in labor force.....	5,736	355	33	12	29	74	19	49	2	22	9	15	66	21	108	5,273
Male, 16 years old and over.....	6,705	5,105	740	584	376	408	1,055	689	303	346	161	88	352	3	204	1,396
Employed.....	5,196	4,928	727	578	364	396	1,024	656	298	310	156	78	338	3	70	198
Professional, technical, and kindred workers.....	711	694	580	30	7	27	26	13	3	-	1	1	6	-	2	15
Managers and administrators, except farm. Sales workers.....	789	770	62	455	75	38	70	29	10	7	2	-	22	-	5	14
Clerical and kindred workers.....	324	306	11	15	242	11	10	5	6	3	-	1	2	-	4	14
Craftsmen and kindred workers.....	374	368	26	20	9	251	12	15	8	24	1	-	2	-	2	4
Craftsmen and kindred workers.....	1,035	1,001	31	36	6	26	762	80	11	34	1	2	12	-	16	18
Operatives, except transport.....	633	603	7	9	2	8	69	453	10	35	1	2	6	1	14	16
Transport equipment operatives.....	274	263	-	4	8	2	14	8	211	13	1	-	2	-	4	7
Laborers, except farm.....	386	347	6	5	10	23	29	41	27	180	2	4	19	1	13	26
Farmers and farm managers.....	215	175	-	1	2	1	3	2	5	1	145	14	1	-	2	38
Farm laborers and farm foremen.....	88	65	1	-	1	2	-	1	2	3	2	52	1	-	3	20
Service workers, except private household.....	363	332	3	3	2	6	29	9	5	10	-	1	264	-	5	26
Private household workers.....	4	4	-	-	-	1	-	-	-	-	-	1	1	-	-	-
Unemployed.....	204	72	5	2	5	16	13	13	4	17	-	3	2	-	92	40
Not in labor force.....	1,305	105	8	4	7	7	15	20	1	19	5	7	12	-	42	1,158
Female, 16 years old and over.....	7,800	3,136	521	110	205	1,105	51	429	14	22	7	19	510	139	168	4,496
Employed.....	3,206	2,853	494	102	179	1,031	47	392	13	19	3	10	447	116	40	313
Professional, technical, and kindred workers.....	516	475	413	7	4	32	1	5	-	-	-	-	13	-	4	37
Managers and administrators, except farm. Sales workers.....	146	130	8	60	15	36	4	1	-	-	-	-	6	-	1	15
Clerical and kindred workers.....	1,102	1,043	45	21	29	906	5	15	1	4	-	-	8	-	1	28
Craftsmen and kindred workers.....	429	42	2	-	-	2	22	15	-	-	-	-	16	1	5	54
Operatives, except transport.....	429	383	1	2	2	7	13	347	-	6	-	-	5	-	16	30
Transport equipment operatives.....	16	16	-	-	-	-	-	1	11	1	-	-	1	-	-	-
Laborers, except farm.....	22	18	-	3	3	4	-	2	-	4	1	-	1	-	1	3
Farmers and farm managers.....	5	1	-	-	-	-	-	-	-	-	1	-	-	-	1	3
Farm laborers and farm foremen.....	37	14	-	-	-	1	-	2	-	1	1	9	-	-	1	22
Service workers, except private household.....	509	451	19	9	7	18	2	1	1	1	-	-	385	8	7	51
Private household workers.....	203	130	2	-	1	4	-	3	-	1	-	-	11	107	3	70
Unemployed.....	163	33	2	-	4	7	-	8	-	-	-	-	9	2	62	68
Not in labor force.....	4,431	250	25	8	22	69	4	31	1	3	4	8	54	21	66	4,115

- Represents zero.

Table 39. Employment Status and Major Occupation Group of Employed Persons
by Race and Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Census classification															
	Total	Employed												Un- employed	Not in labor force	
		Total	Profes- sional, technical, and kindred workers	Managers and adminis- trators, except farm	Sales workers	Clerical and kindred workers	Crafts- men and kindred workers	Opera- tives, except transport	Transport opera- tives	Laborers, except farm	Farmers and farm managers	Farm laborers and farm foremen	Service workers, except private house- hold			Private household workers
WHITE																
Total, 16 years old and over.....	13,260	7,522	1,185	677	569	1,427	1,053	987	285	299	159	86	720	75	317	5,421
Employed.....	7,683	7,131	1,148	663	534	1,350	1,020	932	280	264	153	74	651	62	98	454
Professional, technical, and kindred workers.....	1,161	1,104	936	35	11	58	26	16	3	-	1	1	17	-	6	51
Managers and administrators, except farm. Sales workers.....	909	875	67	506	87	73	72	29	10	5	1	-	25	-	6	28
Clerical and kindred workers.....	492	447	15	354	29	29	10	3	6	4	-	1	10	-	5	40
Craftsmen and kindred workers.....	1,388	1,329	67	39	37	1,095	15	27	8	24	-	-	16	1	5	54
Operatives, except transport.....	1,029	998	33	36	6	26	754	88	11	31	1	1	11	-	16	15
Transport equipment operatives.....	932	871	7	9	4	14	76	713	9	31	-	2	6	-	28	33
Laborers, except farm.....	262	252	-	4	10	2	13	7	203	9	1	4	3	-	4	6
Farmers and farm managers.....	333	297	5	8	13	23	25	34	21	145	3	4	15	1	10	26
Farm laborers and farm foremen.....	209	169	-	1	2	1	3	2	4	1	143	11	1	-	3	37
Service workers, except private household.....	109	67	1	-	1	3	-	3	1	3	3	51	1	-	4	38
Private household workers.....	724	650	16	10	8	22	26	8	4	10	-	1	539	6	8	66
Unemployed.....	135	72	1	-	1	4	-	2	2	1	-	2	7	54	3	60
Not in labor force.....	306	88	7	2	9	11	16	11	4	16	-	2	9	1	126	92
Male, 16 years old and over.....	5,271	303	30	12	26	66	17	44	1	19	6	10	60	12	93	4,875
Employed.....	6,152	4,729	709	571	371	379	1,010	608	274	279	153	72	301	2	179	1,244
Professional, technical, and kindred workers.....	4,816	4,577	697	565	360	369	981	584	269	247	150	65	288	2	65	174
Managers and administrators, except farm. Sales workers.....	686	670	558	29	7	27	26	13	3	-	1	1	5	-	2	14
Clerical and kindred workers.....	766	748	59	446	72	38	69	28	10	5	1	-	20	-	5	13
Craftsmen and kindred workers.....	320	303	11	15	241	11	10	3	6	3	-	1	2	-	4	13
Operatives, except transport.....	340	336	23	19	9	222	10	14	7	20	-	-	2	-	2	2
Transport equipment operatives.....	991	960	31	36	6	24	736	73	11	31	1	1	10	-	16	15
Laborers, except farm.....	559	532	6	8	2	7	64	405	9	27	2	2	2	-	14	13
Farmers and farm managers.....	247	237	-	4	8	2	13	6	193	8	1	-	2	-	4	6
Farm laborers and farm foremen.....	311	279	5	5	10	19	25	32	21	141	2	4	14	1	9	23
Service workers, except private household.....	204	168	-	1	2	1	3	2	4	142	11	11	1	-	2	34
Private household workers.....	74	54	1	-	1	2	-	1	1	2	2	43	1	-	3	17
Unemployed.....	316	288	3	2	2	6	25	7	4	9	-	1	229	-	4	24
Not in labor force.....	2	2	-	-	-	-	-	-	-	-	-	1	-	1	-	-
Female, 16 years old and over.....	180	64	5	2	5	5	16	7	4	16	-	2	2	-	77	39
Employed.....	1,156	88	7	4	6	5	13	17	1	16	3	5	11	-	37	1,031
Professional, technical, and kindred workers.....	7,108	2,793	476	106	198	1,048	43	379	11	20	6	14	419	73	138	4,177
Managers and administrators, except farm. Sales workers.....	2,867	2,554	451	98	174	981	39	348	11	17	3	9	363	60	33	280
Clerical and kindred workers.....	475	434	378	6	4	31	3	3	-	-	-	-	12	-	4	37
Craftsmen and kindred workers.....	143	127	8	60	15	35	3	1	-	-	-	-	5	-	1	15
Operatives, except transport.....	172	144	4	-	113	18	10	-	-	1	-	-	8	-	1	27
Transport equipment operatives.....	1,048	993	44	20	28	863	5	13	1	4	-	-	14	1	3	52
Laborers, except farm.....	38	38	2	-	-	2	18	15	-	-	-	-	1	-	-	-
Farmers and farm managers.....	373	339	1	1	2	7	12	308	4	4	-	-	4	-	14	20
Farm laborers and farm foremen.....	15	15	-	-	-	-	-	10	-	1	-	-	1	-	-	-
Service workers, except private household.....	22	18	-	3	3	4	-	2	-	4	-	-	1	-	1	3
Private household workers.....	5	1	-	-	-	1	-	-	-	-	1	8	-	-	1	21
Unemployed.....	35	13	-	-	-	-	-	-	-	-	-	-	-	-	4	42
Not in labor force.....	408	362	13	8	6	16	1	1	-	1	-	-	310	6	4	60
Male, 16 years old and over.....	133	70	1	-	1	4	-	2	-	1	-	1	7	53	3	53
Employed.....	126	24	2	-	4	6	-	4	-	-	-	-	7	1	49	53
Not in labor force.....	4,115	215	23	8	20	61	4	27	-	3	3	5	49	12	56	3,844

- Represents zero.

Table 39. Employment Status and Major Occupation Group of Employed Persons
by Race and Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Census classification																
	Total	Employed														Un- employed	Not in labor force
		Total	Profes- sional, technical, and kindred workers	Managers and adminis- trators, except farm	Sales workers	Clerical and kindred workers	Crafts- men and kindred workers	Opera- tives, except transport	Transport equipment opera- tives	Laborers, except farm	Farmers and farm managers	Farm laborers and farm foremen	Service workers, except private house- hold	Private household workers			
NEGRO	Total, 16 years old and over.....	1,119	649	62	11	9	72	47	127	31	64	9	20	132	65	54	416
	Employed.....	655	589	60	11	6	64	45	112	30	61	6	13	125	56	12	54
	Professional, technical, and kindred workers.....	52	51	44	1	1	1	1	2	-	-	-	-	2	-	-	1
	Managers and administrators, except farm. Sales workers.....	16	15	3	3	-	3	-	2	-	2	1	-	1	-	-	1
	Clerical and kindred workers.....	74	69	4	1	1	51	1	3	1	4	1	1	2	-	2	3
	Craftsmen and kindred workers.....	43	40	-	-	-	1	27	7	-	3	-	1	1	1	3	3
	Operatives, except transport.....	125	112	1	2	-	1	6	84	1	10	1	1	5	1	2	11
	Transport equipment operatives.....	27	26	-	-	-	1	1	2	18	5	-	-	-	-	1	1
	Laborers, except farm.....	71	64	1	-	-	4	4	9	6	35	-	3	5	-	4	3
	Farmers and farm managers.....	11	7	-	-	-	-	-	-	1	1	-	-	-	-	-	4
	Farm laborers and farm foremen.....	15	11	-	-	-	-	-	-	-	-	-	-	-	-	-	4
	Service workers, except private household.....	141	126	6	2	1	2	4	2	2	1	-	-	-	104	2	4
	Private household workers.....	70	60	1	-	-	-	-	1	-	-	-	-	-	5	-	10
	Unemployed.....	60	17	-	-	-	1	-	10	-	1	-	2	2	2	27	16
	Not in labor force.....	404	43	2	-	3	7	2	5	1	2	3	5	5	8	15	346
	Male, 16 years old and over.....	489	335	21	7	3	24	41	80	28	62	8	16	44	1	24	130
	Employed.....	343	314	21	7	2	23	39	71	28	59	6	13	44	1	5	24
	Professional, technical, and kindred workers.....	15	14	13	-	-	-	-	-	-	-	-	-	1	-	-	1
	Managers and administrators, except farm. Sales workers.....	14	13	3	5	1	1	1	2	-	2	1	-	-	-	-	1
	Clerical and kindred workers.....	4	3	-	-	-	17	-	2	-	-	-	-	-	-	-	1
	Craftsmen and kindred workers.....	30	28	3	-	-	1	1	1	1	4	1	1	1	-	2	2
	Operatives, except transport.....	40	37	1	-	-	1	24	7	-	3	-	1	1	-	3	3
	Transport equipment operatives.....	74	71	1	1	-	1	5	48	1	8	1	1	4	1	-	3
	Laborers, except farm.....	26	25	-	-	-	1	1	2	17	5	-	-	-	-	-	1
	Farmers and farm managers.....	71	64	1	-	-	4	4	9	6	35	-	3	5	-	4	3
	Farm laborers and farm foremen.....	11	7	-	-	-	-	-	-	1	1	-	3	3	-	-	4
	Service workers, except private household.....	14	11	-	-	-	-	-	-	1	1	-	-	9	-	-	3
Private household workers.....	43	40	-	1	-	-	3	2	1	1	-	-	-	32	1	2	
Unemployed.....	23	8	-	-	-	-	-	6	-	1	-	-	-	-	14	1	
Not in labor force.....	123	13	-	-	1	1	2	3	-	2	2	2	2	-	5	105	
Female, 16 years old and over.....	630	314	41	4	6	48	6	47	3	2	2	1	4	88	64	30	286
Employed.....	312	275	39	4	4	41	6	41	2	2	-	-	-	81	55	7	30
Professional, technical, and kindred workers.....	37	37	31	1	-	1	1	2	-	-	-	-	-	1	-	-	-
Managers and administrators, except farm. Sales workers.....	2	2	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-
Clerical and kindred workers.....	44	41	1	1	2	34	-	2	-	-	-	-	2	-	2	1	
Craftsmen and kindred workers.....	3	3	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-
Operatives, except transport.....	51	41	-	1	-	-	1	36	1	2	-	-	-	1	-	2	8
Transport equipment operatives.....	1	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Laborers, except farm.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Farmers and farm managers.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Farm laborers and farm foremen.....	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Service workers, except private household.....	98	86	6	1	1	2	1	1	1	1	-	-	-	72	2	9	3
Private household workers.....	69	59	1	-	-	-	-	-	-	-	-	-	-	4	2	1	10
Unemployed.....	37	9	-	-	-	1	-	4	-	-	-	1	1	1	13	15	241
Not in labor force.....	281	30	2	-	2	6	-	2	1	-	1	1	3	5	8	10	241

- Represents zero.

Table 40. Industry of Persons Employed in Both CPS and Census by Race and Sex

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total	Agriculture, forestry, and fisheries	Mining	Construction	Manufacturing					Transportation	Communications and other public utilities	Wholesale and trade	Retail trade	Finance, insurance, and real estate	Business and repair services	Personal and recreational services	Enter-tainment and recreational services	Professional and related services			Public administration
					Total	Metal industries	Machinery including electrical	Other durable goods	Food and kindred products	Other non-durable goods								Total	Health services	Educational services	
TOTAL	7,781	300	65	449	2,056	257	410	566	142	681	305	243	340	1,173	414	245	340	1,336	393	652	462
Total employed, 16 years old and over.....	7,781	300	65	449	2,056	257	410	566	142	681	305	243	340	1,173	414	245	340	1,336	393	652	462
Agriculture, forestry, and fisheries.....	291	256	-	5	7	-	-	3	2	2	3	-	5	4	-	1	1	3	1	1	4
Mining.....	55	55	44	1	5	2	2	1	1	1	1	1	3	-	-	1	-	-	-	-	-
Construction.....	456	7	14	362	19	7	2	4	-	6	5	4	6	24	2	8	2	7	1	7	8
Manufacturing.....	2,161	7	14	391	1,886	243	391	613	124	615	6	10	82	58	5	31	6	15	4	3	6
Durable goods.....	1,299	3	9	26	1,144	237	385	586	2	34	3	7	36	26	5	20	1	14	3	3	4
Metal industries.....	276	2	4	12	240	122	17	26	1	4	-	2	4	11	6	9	-	2	-	-	1
Machinery, incl. electrical.....	460	1	1	2	406	27	338	32	1	8	2	1	16	11	2	2	1	8	1	3	2
Transportation equipment.....	238	-	-	4	221	8	11	195	-	7	2	-	3	3	3	-	1	3	-	-	1
Other durable goods.....	325	-	4	8	277	10	19	233	-	15	-	4	13	8	3	3	-	3	2	-	1
Nondurable goods, including not specified manufacturing.....	862	4	5	8	742	6	6	27	122	581	3	3	46	32	-	11	5	1	1	-	2
Food and kindred products.....	183	1	-	1	126	2	3	3	118	3	2	1	32	16	-	3	-	1	1	-	-
Textile mill and other fabricated textile products.....	210	1	1	2	195	-	1	4	1	189	-	-	1	6	-	1	3	-	-	-	-
Other nondurable goods.....	469	2	4	5	421	4	5	20	3	389	-	2	13	10	-	7	2	-	-	-	2
Transportation, communications, and other public utilities.....	552	5	3	13	11	1	2	4	2	2	268	213	7	12	3	3	1	6	2	1	3
Transportation.....	310	3	2	8	9	1	1	4	2	1	252	1	7	8	3	3	1	2	-	1	1
Communications.....	108	-	-	-	1	-	1	-	-	-	1	101	-	1	-	1	-	2	-	-	-
Utilities.....	134	2	1	5	1	-	-	-	-	1	5	111	-	3	-	-	-	4	2	-	2
Wholesale and retail trade.....	1,418	11	2	13	67	2	9	21	11	24	12	4	226	1,012	4	29	10	18	5	4	7
Wholesale trade.....	291	5	2	6	33	1	6	10	6	10	4	1	182	43	1	7	1	-	-	-	2
Retail trade.....	1,127	6	-	7	34	1	3	11	5	14	8	3	44	969	3	22	9	14	5	4	5
Finance, insurance, and real estate.....	420	1	-	-	6	2	-	4	-	-	1	1	1	5	374	3	5	7	3	-	10
Banking and credit agencies.....	165	-	-	-	4	1	-	3	-	-	1	-	1	2	151	1	1	1	1	-	3
Insurance, real estate, and other finance.....	255	1	-	5	2	1	-	1	-	-	-	1	-	3	223	2	4	6	2	-	7
Business and repair services.....	209	-	1	2	16	-	5	3	1	7	2	3	4	14	6	151	4	8	1	2	1
Personal services.....	364	5	-	2	7	-	-	1	1	6	-	1	3	15	5	2	303	18	5	5	1
Private households.....	142	5	-	-	4	-	-	-	-	4	-	-	2	5	1	-	2	5	2	2	-
Other personal services.....	222	-	-	2	3	-	-	-	1	2	-	1	1	10	4	2	183	13	3	3	1
Entertainment and recreation services.....	49	-	-	-	2	-	-	1	-	1	1	1	-	4	1	-	1	4	-	1	3
Professional & related services.....	1,347	4	-	7	21	-	1	7	-	13	1	4	2	18	9	10	9	1,230	369	630	22
Health services.....	405	1	-	1	5	-	-	2	-	3	1	1	8	3	3	2	6	1,369	356	3	7
Education services.....	689	1	-	3	7	-	-	3	-	-	2	2	6	1	1	1	1	637	5	620	6
Public administration.....	459	4	-	5	9	-	-	5	-	4	3	1	1	7	5	6	1	20	2	397	397
Male employed, 16 years old and over.....	4,928	281	59	421	1,505	221	307	459	109	409	256	173	261	672	196	189	80	480	98	236	328
Agriculture, forestry, and fisheries.....	269	240	-	5	7	-	-	3	2	2	3	-	2	2	-	1	1	2	1	1	4
Mining.....	51	-	40	1	5	2	-	1	1	1	1	1	3	-	-	1	-	2	-	-	-
Construction.....	422	7	1	340	17	7	1	3	-	6	4	4	6	19	2	7	2	6	1	1	4
Manufacturing.....	1,596	6	13	33	1,376	207	292	420	94	363	6	8	64	38	4	27	4	11	3	2	5
Metal industries.....	235	2	4	12	201	165	13	18	1	4	2	2	4	3	-	6	1	1	-	-	-
Machinery, incl. electrical.....	345	1	1	2	300	21	249	24	1	5	1	-	12	8	2	9	1	7	1	2	1
Transportation equipment.....	214	-	-	4	198	7	11	175	-	5	2	-	3	3	-	2	-	2	-	-	2
Other durable goods.....	256	-	-	8	215	9	13	184	-	3	2	4	11	6	2	2	-	2	1	-	1
Food and kindred products.....	138	-	-	1	98	2	3	90	-	3	2	-	24	11	-	1	-	1	1	-	1
Other nondurable goods.....	408	3	4	6	364	3	6	16	2	337	1	2	10	7	-	7	3	-	-	-	1

- Represents zero.

Table 40. Industry of Persons Employed in Both CPS and Census by Race and Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Census classification																			
	Agri- cul- ture, forestry, and fish- eries	Min- ing	Con- struc- tion	Manufacturing					Trans- porta- tion	Com- muni- cations and other public utili- ties	Whole- sale trade	Retail trade	Finance, insur- ance, and real estate	Busi- ness and repair ser- vices	Per- sonal and ser- vices	Enter- tain- ment and recre- ational ser- vices	Professional and related services			Public admin- istra- tion
				Total	Metal indus- tries	Ma- chinery and elec- trical	Other durable goods	Food and kindred prod- ucts									Other non- durable goods	Total	Health ser- vices	
TOTAL--Continued																				
Male employed, 16 years old and over--Continued																				
Transportation, communications, and other public utilities.....	433	3	12	11	1	2	4	2	2	230	148	7	5	1	2	-	4	3	1	1
Wholesale and retail trade.....	886	10	2	53	2	7	16	8	20	7	2	175	584	2	24	4	1	7	2	1
Finance, insurance, and real estate.....	197	-	5	5	2	-	3	-	-	-	-	-	2	171	2	3	-	1	-	-
Business services.....	76	-	-	8	-	2	1	1	4	-	2	-	4	4	52	-	-	6	-	-
Repair services.....	75	-	1	2	-	2	-	-	-	2	1	2	4	1	61	1	-	-	-	1
Personal services.....	83	-	2	3	-	-	-	1	2	-	1	-	1	2	2	65	-	2	-	2
Entertainment and recreation services.....	30	-	-	2	-	-	1	-	1	1	1	-	3	1	6	-	17	3	-	3
Professional & related services.....	487	-	5	11	-	1	4	-	6	4	4	1	6	6	6	-	1	432	88	226
Public administration.....	323	-	5	5	-	-	3	-	2	3	1	1	4	2	4	-	-	7	2	1
Female employed, 16 years old and over.....	2,853	6	28	551	36	103	107	33	272	49	70	79	501	218	56	260	26	856	295	416
Agriculture, forestry, and fisheries.....	22	-	-	-	-	-	-	-	-	-	-	3	2	-	-	-	-	1	-	-
Mining.....	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Construction.....	34	-	22	2	-	-	1	-	-	1	-	-	5	-	1	-	-	1	-	2
Manufacturing.....	565	1	1	510	36	99	93	30	252	-	2	18	20	1	4	2	-	4	1	1
Durable goods.....	249	-	1	230	35	99	85	-	11	-	1	6	6	1	1	-	-	4	1	1
Nondurable goods.....	316	1	1	280	1	-	8	30	241	-	1	12	14	-	3	2	-	-	-	-
Transportation, communications, and other public utilities.....	119	-	1	-	-	-	-	-	38	65	2	51	7	2	1	1	-	3	1	1
Wholesale and retail trade.....	532	1	1	14	-	2	5	3	4	5	2	428	2	5	6	6	2	11	3	3
Banking and credit agencies... Insurance, real estate, and other finance.....	114	-	-	1	-	-	1	-	-	1	-	1	2	106	-	1	-	1	1	1
Business and repair services... Private households.....	109	-	-	-	-	-	-	-	-	-	-	-	1	97	1	1	1	5	2	-
Other personal services..... Entertainment and recreation services.....	58	1	1	6	-	1	2	-	3	-	-	2	6	1	38	-	-	2	1	1
Professional & related services, Health services.....	135	-	-	3	-	-	-	-	-	-	-	-	5	1	-	119	-	4	2	1
Education services..... Public administration.....	146	-	-	1	-	-	-	-	1	-	-	1	9	2	-	119	2	12	3	2
Transportation.....	19	-	-	-	-	-	-	-	-	-	1	-	1	-	-	1	15	1	-	-
Other nondurable goods.....	860	-	2	10	-	-	3	-	7	4	-	1	12	3	4	9	6	798	281	404
Food and kindred products.....	304	-	-	4	-	-	1	-	3	1	-	5	2	1	6	1	-	280	273	2
Transportation.....	427	-	-	2	-	-	2	-	-	2	-	1	4	1	-	1	-	413	3	3
Public administration.....	136	-	-	4	-	-	2	-	2	-	-	-	3	3	2	1	-	13	-	4
WHITE																				
Total employed, 16 years old and over.....	7,131	272	62	1,902	240	394	518	128	622	283	226	326	1,105	393	233	259	50	1,197	337	591
Agriculture, forestry, and fisheries.....	264	233	-	4	5	-	2	1	2	3	-	5	4	-	1	1	1	3	1	1
Mining.....	53	-	42	1	5	2	1	1	1	-	1	3	-	-	1	-	-	-	-	-
Construction.....	428	6	1	18	6	2	4	6	6	5	4	6	23	2	8	2	1	7	1	1
Manufacturing.....	2,003	6	13	1,749	227	375	471	113	563	5	9	77	55	5	29	4	1	15	4	3
Metal industries.....	258	1	4	227	179	17	26	1	4	2	2	4	4	-	6	-	-	-	-	-
Machinery, incl. electrical.....	438	1	1	387	25	324	29	1	8	1	2	15	10	2	9	1	-	2	-	3
Transportation equipment.....	213	-	-	196	8	10	171	-	7	2	-	3	3	2	2	-	1	8	1	1
Other durable goods.....	305	-	3	7	263	18	221	-	15	-	4	10	8	3	2	-	1	3	2	-
Food and kindred products.....	168	1	-	114	9	2	11	2	3	1	-	31	15	3	3	-	1	1	1	-
Other nondurable goods.....	621	3	5	562	4	6	22	4	1	14	2	14	15	2	7	3	-	-	-	-
Transportation.....	291	3	2	7	1	1	3	1	1	245	1	7	8	3	3	-	1	2	-	1

- Represents zero.

Table 40. Industry of Persons Employed in Both CPS and Census by Race and Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification		Census classification																					
		Agriculture, forestry, and fisheries	Mining	Construction	Manufacturing					Transportation	Communications and other public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Business and repair services	Personal services	Entertainment and recreational services	Professional and related services			Public administration		
					Total	Metal industries	Machinery including electrical	Other durable goods	Food and kindred products									Other non-durable goods	Total	Health services		Educational services	
Total		WHITE--Continued																					
Total employed, 16 years old and over--Continued																							
Communications and other																							
226		2	1	5	2	-	1	-	-	1	6	197	-	4	-	-	1	3	4	2	-	1	
280		4	2	5	31	1	6	10	6	8	4	1	177	41	1	7	1	-	4	-	-	2	
1,060		6	-	6	29	1	3	10	4	11	7	3	41	917	2	22	8	2	12	4	3	5	
394		1	-	5	6	2	-	4	-	-	1	-	1	3	355	3	5	1	5	2	-	8	
196		-	1	2	16	-	5	3	1	7	-	3	4	13	6	144	-	6	1	1	-	1	
273		4	-	2	5	-	-	-	1	4	-	1	2	12	5	2	228	2	9	2	2	1	
43		-	-	-	1	-	-	-	-	-	1	1	1	4	-	-	-	31	2	-	1	3	
1,220		4	-	7	20	-	1	6	-	13	3	4	2	15	9	10	9	7	1,111	318	577	19	
351		1	-	1	5	-	-	2	-	3	1	1	-	7	3	2	6	1	317	305	3	6	
610		1	-	3	6	-	-	2	-	4	1	2	2	6	1	1	1	-	582	5	567	4	
400		3	-	4	8	-	-	4	-	4	3	1	1	6	5	3	-	-	17	2	3	349	
4,577		254	57	388	1,391	206	293	420	96	376	237	164	249	633	187	183	70	24	451	92	221	289	
Male employed, 16 years old and over.....																							
243		-	-	4	5	-	-	2	1	2	3	-	2	2	-	1	1	1	2	1	1	4	
50		218	39	1	5	2	-	-	1	1	-	1	3	-	-	1	-	-	-	-	-	-	
395		6	1	316	16	6	1	3	6	6	4	4	6	18	2	7	2	1	6	1	-	6	
1,478		5	12	28	1,275	193	278	385	84	335	5	8	59	36	4	26	3	1	11	3	2	5	
218		1	4	8	189	13	13	18	1	4	-	2	4	3	-	6	-	-	1	-	-	-	
327		1	1	2	284	20	236	22	1	5	1	-	11	7	2	9	1	-	7	1	2	1	
191		-	-	4	175	7	10	153	-	5	2	-	3	3	-	2	-	-	1	2	2	2	
240		-	3	7	205	8	13	175	-	9	-	4	8	6	2	1	-	1	2	1	1	-	
124		-	-	1	87	2	2	10	2	80	3	1	23	10	-	1	-	1	1	1	-	1	
378		3	4	6	335	3	6	15	2	309	1	2	10	7	-	7	2	-	-	-	-	1	
Other nondurable goods.....																							
Transportation, communications, and other public utilities.....																							
407		5	3	12	9	1	2	3	1	2	215	140	7	5	1	2	-	4	3	1	1	1	
836		9	2	10	47	2	7	15	7	16	6	2	168	552	2	24	4	-	7	2	1	3	
Finance, insurance, and real estate.....																							
186		1	-	5	5	2	-	3	-	-	-	-	-	1	163	2	3	-	1	-	-	5	
73		-	-	8	-	-	2	1	1	4	-	2	3	4	51	-	-	-	5	-	-	-	
70		-	-	1	2	-	2	-	-	-	-	1	2	4	1	59	-	-	-	-	-	-	
72		3	-	2	2	-	-	-	1	1	-	1	-	1	2	2	57	-	1	-	1	1	
Personal services.....																							
26		-	-	-	1	-	-	-	-	1	1	1	-	3	-	-	-	16	2	-	1	3	
460		4	-	5	11	-	1	4	-	6	-	4	1	5	6	6	-	1	408	82	214	9	
281		3	-	4	5	-	-	3	-	2	3	1	1	3	2	2	-	-	5	2	-	252	
Professional & related services, public administration.....																							
2,554		18	5	27	511	34	101	98	32	246	46	62	77	472	206	50	189	26	746	245	370	119	
Female employed, 16 years old and over.....																							
Agriculture, forestry, and fisheries.....																							
21		15	-	-	-	-	-	-	-	-	-	-	-	3	2	-	-	-	1	-	-	-	
3		-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
33		-	-	21	2	-	1	1	-	-	1	-	-	5	-	1	-	-	1	-	-	2	
525		1	1	1	474	34	97	86	29	228	-	1	18	19	1	3	1	-	4	1	1	1	
238		-	-	-	220	33	97	79	-	11	-	6	6	1	1	1	-	-	4	1	1	-	
287		1	1	1	254	1	-	7	29	217	-	1	12	13	-	2	1	-	-	-	-	1	
Nondurable goods.....																							
Transportation, communications, and other public utilities.....																							
110		-	-	1	-	-	-	-	-	-	36	58	-	7	2	1	1	-	3	1	1	1	
504		1	-	1	13	-	2	5	3	3	-	2	50	406	1	5	5	2	9	2	2	4	
108		-	-	-	1	-	-	1	-	-	1	-	1	1	-	-	1	-	1	1	-	1	
Banking and credit agencies.....																							
- Represents zero.																							

- Represents zero.

Table 40. Industry of Persons Employed in Both CPS and Census by Race and Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Census classification																	Public administration
	Agriculture, forestry, and fisheries	Mining	Construction	Manufacturing				Transportation	Communications and other public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Business and repair services	Personal services	Entertainment and recreation services	Professional and related services		
Total				Total	Metal industries	Machinery including electrical	Other durable goods	Food and kindred products	Other non-durable goods							Total	Health services	Educational services
WHITE--Continued																		
Female employed, 16 years old and over--Continued																		
Insurance, real estate, and other finance.....	-	-	-	-	-	-	-	-	-	-	-	91	1	1	1	3	1	-
Business and repair services...	53	1	1	2	6	1	34	1	1	2	6	1	1	-	-	1	1	1
Private households.....	74	-	-	4	-	-	-	-	-	-	-	1	62	-	-	3	2	1
Other personal services.....	127	-	-	1	-	-	-	-	1	-	7	2	-	109	2	5	-	-
Entertainment and recreation services.....	17	-	-	-	-	-	-	-	-	-	1	-	-	-	15	-	-	-
Professional & related services...	760	-	2	9	-	-	7	3	7	3	1	10	3	4	9	703	236	363
Health services.....	257	-	-	4	-	-	3	1	3	1	-	4	2	1	6	235	228	2
Education services.....	382	-	-	1	-	-	1	-	-	1	1	4	1	1	1	370	359	3
Public administration.....	119	-	-	3	-	-	2	-	-	-	-	3	3	1	-	12	-	97
NEGRO																		
Total employed, 16 years old and over.....	589	23	32	149	17	14	47	14	57	20	16	56	15	10	78	2	127	54
Agriculture, forestry, and fisheries.....	22	18	1	2	-	-	1	1	-	-	-	-	-	-	-	1	-	-
Mining.....	27	1	24	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Construction.....	152	1	4	132	16	14	41	11	50	1	1	5	3	2	2	-	-	-
Metal industries.....	17	1	3	13	13	-	3	-	-	-	1	1	1	-	-	-	-	-
Machinery, incl. electrical..	20	-	-	17	2	12	24	-	-	-	-	1	-	-	-	-	-	-
Transportation equipment.....	25	-	-	25	1	1	11	-	-	-	-	-	-	1	-	-	-	-
Other durable goods.....	19	-	1	13	1	1	11	-	11	1	-	1	-	-	-	-	-	-
Food and kindred products....	15	-	-	12	-	-	2	-	50	1	-	1	-	1	2	-	-	-
Other nondurable goods.....	56	-	-	52	-	-	2	-	-	15	-	-	-	-	-	-	-	-
Transportation.....	17	-	-	2	-	-	1	1	-	-	-	-	-	-	-	-	-	-
Communications and other public utilities.....	15	-	-	-	-	-	-	-	-	-	14	-	-	-	-	-	-	-
Wholesale trade.....	8	1	1	2	-	-	-	-	2	-	2	-	-	-	-	-	-	-
Retail trade.....	55	-	1	5	-	-	1	1	3	1	-	42	1	-	1	2	1	1
Finance, insurance, and real estate.....	18	-	-	-	-	-	-	-	-	-	1	-	13	-	-	2	1	1
Business and repair services...	11	-	-	-	-	-	-	-	-	2	-	1	-	5	1	2	2	2
Personal services.....	85	1	-	2	-	-	-	-	2	-	-	-	-	-	72	-	3	1
Entertainment and recreation services.....	6	-	-	1	-	-	1	-	-	-	-	-	1	-	1	2	-	-
Professional & related services...	117	-	-	1	-	-	1	-	-	1	-	3	1	-	1	49	48	48
Health services.....	51	-	-	-	-	-	-	-	-	-	-	1	-	-	-	49	1	1
Education services.....	54	-	-	1	-	-	1	-	-	1	-	-	-	-	-	50	48	2
Public administration.....	54	1	-	1	-	-	1	-	-	-	-	1	-	3	1	3	-	43
Male employed, 16 years old and over.....																		
314	23	2	31	111	15	12	39	13	32	17	8	9	9	6	8	22	4	13
Agriculture, forestry, and fisheries.....	22	18	1	2	-	-	1	1	-	-	-	-	-	-	-	1	-	-
Mining.....	26	1	23	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Construction.....	114	1	4	98	14	12	35	10	27	1	-	1	-	1	1	-	-	-
Metal industries.....	16	1	3	12	12	11	2	-	-	-	-	1	-	-	-	-	-	-
Machinery, incl. electrical..	23	-	-	14	1	1	22	-	-	-	-	-	-	-	-	-	-	-
Transportation equipment.....	16	-	-	23	-	-	9	-	-	-	-	-	-	-	-	-	-	-
Other durable goods.....	14	-	1	10	1	-	1	-	-	-	-	-	-	1	-	-	-	-
Food and kindred products....	14	-	-	11	-	-	1	-	10	1	-	1	-	-	-	-	-	-
Other nondurable goods.....	29	-	-	28	-	-	1	-	27	-	-	1	-	-	1	-	-	-

- Represents zero.

Table 40. Industry of Persons Employed in Both CPS and Census by Race and Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total	Census classification																Public admin- istra- tion		
		Agriculture, forestry, and fisheries	Mining	Construction	Manufacturing					Transportation	Com- muni- cations and other public utilities	Retail trade	Finance, insurance, and real estate services	Business and repair services	Personal services	Enter- tain- ment and recreational services	Professional and related services			
					Total industries	Metal machinery including electrical	Other durable goods	Food and kindred products	Other non-durable goods								Health ser- vices		Educa- tion ser- vices	
NEGRO--Continued																				
Male employed, 16 years old and over--Continued																				
Transportation, communications, and other public utilities.....	23	-	-	-	2	-	-	1	1	-	13	7	-	-	-	-	-	-	-	1
Wholesale and retail trade.....	39	1	-	2	6	-	-	1	1	4	1	-	4	25	-	-	-	-	-	-
Finance, insurance, and real estate.....	10	-	-	-	-	-	-	-	-	-	-	1	-	1	8	-	-	-	-	-
Business services.....	3	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-
Repair services.....	5	-	-	-	-	-	-	-	-	-	2	-	-	-	-	2	1	-	-	-
Personal services.....	8	1	-	-	1	-	-	-	-	1	-	-	-	-	-	-	6	-	-	-
Entertainment and recreation services.....	4	-	-	-	1	-	-	1	-	-	-	-	-	-	1	-	-	1	-	-
Professional & related services.....	21	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	4	11	2	2
Public administration.....	38	1	-	1	-	-	-	-	-	-	-	-	-	1	-	2	-	31	1	31
Female employed, 16 years old and over.....	275	-	1	1	38	2	2	8	1	25	3	8	1	24	6	4	70	105	50	41
Agriculture, forestry, and fisheries.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mining.....	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Construction.....	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manufacturing.....	38	-	-	-	34	2	2	6	1	23	-	1	-	1	-	1	1	-	-	-
Durable goods.....	10	-	-	-	9	2	2	5	-	-	-	1	-	-	-	-	-	-	-	-
Nondurable goods.....	28	-	-	-	25	-	-	1	1	23	-	-	-	1	-	1	1	-	-	-
Transportation, communications, and other public utilities.....	9	-	-	-	-	-	-	-	-	-	2	7	-	-	-	-	-	-	-	-
Wholesale and retail trade.....	24	-	-	-	1	-	-	-	-	1	-	-	-	19	1	-	1	2	1	1
Banking and credit agencies.....	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
Insurance, real estate, and other finance.....	6	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	2	1	1	1
Business and repair services.....	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	1	-	-
Private households.....	60	-	-	-	1	-	-	-	-	1	-	-	1	1	-	-	56	1	-	-
Other personal services.....	17	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	10	3	1	-
Entertainment and recreation services.....	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Professional & related services.....	96	-	-	-	1	-	-	1	-	-	1	-	-	2	-	-	-	1	45	37
Health services.....	47	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	45	1	1
Education services.....	41	-	-	-	1	-	-	1	-	-	1	-	-	1	-	-	-	39	37	1
Public administration.....	16	-	-	-	1	-	-	1	-	-	-	-	-	-	-	1	-	-	1	12

- Represents zero.

Table 41. Employment Status and Major Industry Group of Employed Persons by Race and Sex

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total	Census classification													Unem- played	Not in labor force
		Employed														
		Total	Agricul- ture, forestry, and fisheries	Mining	Construc- tion	Manufac- turing	Transpor- tation, communi- cations, and other public utilities	Whole- sale and retail trade	Finance, insur- ance, and real estate	Business and repair services	Personal services	Entertain- ment and recreation services	Profes- sional and related services	Public adminis- tration		
TOTAL	14,513	8,248	336	69	482	2,147	574	1,619	430	259	388	61	1,405	478	373	5,892
Total, 16 years old and over.....	8,403	7,781	300	65	449	2,056	548	1,513	414	245	340	53	1,336	462	111	511
Employed.....	384	291	256	-	5	7	3	9	-	1	1	2	3	4	9	84
Agriculture, forestry, and fisheries..	60	55	44	44	1	5	1	3	-	1	-	-	-	-	2	3
Mining.....	494	456	7	1	362	19	9	30	2	8	2	1	7	8	21	17
Construction.....	2,246	2,161	7	14	34	1,886	16	140	5	31	6	1	15	6	31	54
Manufacturing.....																
Transportation, communications, and other public utilities.....	570	552	5	3	13	11	481	19	3	3	1	4	6	3	5	13
Wholesale and retail trade.....	1,549	1,418	11	2	13	67	16	1,238	4	29	10	3	18	7	16	115
Finance, insurance, and real estate...	438	420	1	5	6	6	374	6	3	3	5	1	7	10	3	15
Business and repair services.....	229	209	-	1	2	16	5	18	6	151	1	-	8	1	5	15
Personal services.....	475	364	5	-	2	7	1	18	5	2	303	2	18	1	7	104
Entertainment and recreation services.	62	49	-	-	2	2	2	4	1	-	1	32	4	3	-	13
Professional and related services.....	1,419	1,347	4	-	7	21	8	20	9	10	9	7	1,230	22	9	63
Public administration.....	477	459	4	-	5	9	4	8	5	6	1	-	20	397	3	15
Unemployed.....	374	112	8	-	19	29	14	21	1	4	5	1	5	5	154	108
Not in labor force.....	5,736	355	28	4	14	62	12	85	15	10	43	7	64	11	108	5,273
Male, 16 years old and over.....	6,705	5,105	300	62	451	1,549	443	964	201	196	86	31	492	330	204	1,396
Employed.....	5,196	4,928	281	59	421	1,505	429	933	196	189	80	27	480	328	70	198
Agriculture, forestry, and fisheries..	333	269	240	-	5	7	3	4	-	1	1	2	2	4	6	58
Mining.....	56	51	40	40	1	5	1	3	-	1	-	-	-	-	2	3
Construction.....	458	422	7	1	340	17	8	25	2	7	2	1	6	6	21	15
Manufacturing.....	1,641	1,596	6	13	33	1,376	14	102	4	27	4	1	11	5	15	30
Transportation, communications, and other public utilities.....	445	433	5	3	12	11	378	12	1	2	-	4	3	2	5	7
Wholesale and retail trade.....	942	886	10	2	12	53	9	759	2	24	4	1	7	3	12	44
Finance, insurance, and real estate...	203	197	1	-	5	5	2	171	171	2	3	-	1	6	2	4
Business and repair services.....	159	151	-	-	1	10	5	10	5	113	1	-	6	-	2	6
Personal services.....	88	83	4	-	2	3	1	2	2	2	65	-	2	1	-	5
Entertainment and recreation services.	37	30	-	-	2	2	1	3	1	-	-	17	3	3	-	7
Professional and related services.....	497	487	4	-	5	11	4	7	6	6	-	1	432	11	3	7
Public administration.....	337	323	4	-	5	5	4	5	2	4	-	-	7	287	2	12
Unemployed.....	204	72	4	-	19	23	8	11	-	2	-	1	2	2	92	40
Not in labor force.....	1,305	105	15	3	11	21	6	20	5	5	6	3	10	-	42	1,158
Female, 16 years old and over.....	7,808	3,143	36	7	31	598	131	655	229	63	302	30	913	148	169	4,496
Employed.....	3,207	2,853	19	6	28	551	119	580	218	56	260	26	856	134	41	313
Agriculture, forestry, and fisheries..	51	22	16	-	-	-	-	5	-	-	-	-	1	-	3	26
Mining.....	4	4	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Construction.....	36	34	1	-	22	2	1	5	-	1	2	-	1	2	-	-
Manufacturing.....	605	565	1	1	1	510	2	38	1	4	2	-	4	1	16	24
Transportation, communications, and other public utilities.....	125	119	-	-	1	-	103	7	2	1	1	-	3	1	-	6
Wholesale and retail trade.....	607	532	1	-	1	14	7	479	2	5	2	2	11	4	4	71
Finance, insurance, and real estate...	235	223	-	-	1	1	1	4	203	1	2	1	6	4	1	11
Business and repair services.....	70	58	-	1	1	6	-	8	1	38	-	-	2	1	3	9
Personal services.....	387	281	1	-	1	4	-	17	3	3	238	-	16	-	7	99
Entertainment and recreation services.	25	19	-	-	-	-	1	1	-	-	1	15	2	-	-	6
Professional and related services.....	922	860	-	-	2	10	4	13	3	4	9	6	798	11	6	56
Public administration.....	140	136	-	-	-	4	4	3	3	2	1	1	13	110	1	3
Unemployed.....	170	40	4	-	-	6	6	10	1	2	5	-	3	3	62	68
Not in labor force.....	4,431	250	13	1	3	41	6	65	10	5	37	4	54	11	66	4,115

- Represents zero.

Table 41. Employment Status and Major Industry Group of Employed Persons by Race and Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Census classification														Unem- ployed	Not in labor force
	Total	Employed														
		Agricul- ture, forestry, and fisheries	Mining	Construc- tion	Manufac- turing	Transpor- tation communi- cations, and other public utilities	Whole- sale and retail trade	Finance, insur- ance, and real estate	Business and repair services	Personal services	Entertain- ment and recreation services	Profes- sional and related services	Public adminis- tration			
WHITE	13,260	7,522	295	66	447	1,977	528	1,531	407	244	292	57	1,256	422	317	5,421
Total, 16 years old and over.....	7,683	7,131	272	62	415	1,902	509	1,431	393	233	259	50	1,197	408	98	454
Employed.....	349	264	233	-	4	5	3	9	-	1	1	1	3	4	9	76
Agriculture, forestry, and fisheries..	58	53	-	42	1	1	1	3	-	1	-	-	-	-	2	3
Mining.....	464	428	6	1	337	18	9	29	2	8	2	1	7	8	21	15
Construction.....	2,078	2,003	6	13	29	1,749	14	132	5	29	4	1	15	6	31	44
Manufacturing.....	531	517	5	3	13	9	449	19	3	3	1	4	6	2	2	12
Transportation, communications, and other public utilities.....	1,462	1,340	10	2	11	60	15	1,176	3	29	9	2	16	7	15	107
Wholesale and retail trade.....	410	394	1	-	5	6	1	4	355	3	5	1	5	8	2	14
Finance, insurance, and real estate...	212	196	-	1	2	16	3	17	6	144	-	-	6	1	2	14
Business and repair services.....	367	273	4	-	2	5	1	14	5	2	228	2	9	1	5	89
Personal services.....	55	43	-	-	7	1	2	4	-	-	31	3	2	3	-	12
Entertainment and recreation services.	1,285	1,220	4	-	7	20	7	17	9	10	9	8	1,111	19	8	57
Professional and related services....	412	400	3	-	4	8	4	7	5	3	-	-	17	349	1	11
Public administration.....	306	88	3	-	19	21	9	20	1	3	3	1	3	5	126	92
Unemployed.....	5,271	303	20	4	13	54	10	80	13	8	30	6	56	9	93	4,875
Not in labor force.....	6,152	4,729	268	60	417	1,427	414	911	192	189	74	27	459	291	179	1,244
Male, 16 years old and over.....	4,816	4,577	254	57	388	1,391	401	882	187	183	70	24	451	289	65	174
Employed.....	300	243	218	-	4	5	3	4	-	1	1	1	2	4	6	51
Agriculture, forestry, and fisheries..	55	50	-	39	1	5	1	3	-	1	2	-	-	-	2	13
Mining.....	429	395	6	1	316	16	8	24	2	7	2	1	6	6	21	13
Construction.....	1,519	1,478	5	12	28	1,275	13	95	4	26	3	1	11	5	15	26
Manufacturing.....	415	407	5	3	12	9	355	12	1	2	-	4	3	1	2	6
Transportation, communications, and other public utilities.....	888	836	9	2	10	47	8	720	2	24	4	-	7	3	11	41
Wholesale and retail trade.....	192	186	1	-	5	5	-	1	163	2	3	-	1	5	2	4
Finance, insurance, and real estate....	150	143	-	-	2	10	3	9	5	110	-	-	5	-	2	5
Business and repair services.....	76	72	3	-	2	2	1	1	2	2	57	-	1	1	4	4
Personal services.....	32	26	-	-	2	1	1	3	2	-	-	16	2	3	-	6
Entertainment and recreation services.	470	460	4	-	5	11	4	6	6	6	-	1	408	9	3	7
Professional and related services.....	290	281	3	-	4	5	4	4	2	2	-	-	5	252	1	8
Public administration.....	180	64	3	-	19	18	8	10	-	2	-	1	1	2	77	39
Unemployed.....	1,156	88	11	3	10	18	5	19	5	4	4	2	7	-	37	1,031
Not in labor force.....	7,108	2,793	27	6	30	550	114	620	215	55	218	30	797	131	138	4,177
Female, 16 years old and over.....	2,867	2,554	18	5	27	511	108	549	206	50	189	26	746	119	33	280
Employed.....	49	21	15	-	-	-	-	5	-	-	-	-	1	-	3	25
Agriculture, forestry, and fisheries..	3	3	-	3	-	-	-	5	-	-	-	-	-	-	-	2
Mining.....	35	33	-	21	2	2	1	5	-	1	-	-	1	2	-	2
Construction.....	559	525	1	1	1	474	1	37	1	3	1	-	4	1	16	18
Manufacturing.....	116	110	-	-	1	-	94	7	-	1	1	-	3	1	-	6
Transportation, communications, and other public utilities.....	574	504	1	-	1	13	7	456	1	5	5	2	9	4	4	66
Wholesale and retail trade.....	218	208	-	-	1	6	1	3	192	1	2	1	4	3	-	10
Finance, insurance, and real estate...	62	53	-	1	1	-	-	8	1	34	-	-	1	1	-	9
Business and repair services.....	291	201	1	-	1	-	-	13	3	-	171	-	2	8	5	85
Personal services.....	23	17	-	-	2	9	1	11	3	-	-	15	-	-	5	6
Entertainment and recreation services.	815	760	-	-	2	-	3	11	3	4	9	6	703	10	5	50
Professional and related services....	122	119	-	-	-	3	-	3	3	1	-	-	12	97	3	3
Public administration.....	126	24	-	-	-	3	-	10	1	1	3	-	2	2	4	53
Unemployed.....	4,115	215	9	1	3	36	5	61	8	4	26	4	49	9	56	3,844
Not in labor force.....																

- Represents zero.

Table 41. Employment Status and Major Industry Group of Employed Persons by Race and Sex—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total	Census classification													Unem- played	Not in labor force	
		Employed															
		Total	Agricul- ture, forestry, and fisheries	Mining	Construc- tion	Manufac- turing	Transpor- tation, communi- cations, and other public utilities	Whole- sale and retail trade	Finance, insur- ance, and real estate	Business and repair services	Personal services	Entertain- ment and recreation services	Profes- sional and related services	Public adminis- tration			
NEGRO																	
Total, 16 years old and over.....	1,119	649	33	3	33	163	39	71	17	13	91	2	134	50	54	416	
Employed.....	655	589	23	3	32	149	36	66	15	10	78	2	127	48	12	54	
Agriculture, forestry, and fisheries..	30	22	18	-	1	2	-	-	-	-	-	1	-	-	-	8	
Mining.....	2	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-	
Construction.....	29	27	1	-	24	1	1	1	1	-	-	-	-	-	-	2	
Manufacturing.....	161	152	1	1	4	132	2	8	-	2	2	-	-	-	-	9	
Transportation, communications, and other public utilities.....	36	32	-	-	-	2	29	-	-	-	-	-	-	1	3	1	
Wholesale and retail trade.....	70	63	1	-	2	7	1	48	1	-	1	-	2	-	1	6	
Finance, insurance, and real estate...	20	18	-	-	-	-	1	1	13	-	-	-	2	1	1	1	
Business and repair services.....	15	11	-	-	-	-	2	1	-	5	-	-	2	1	3	1	
Personal services.....	102	85	1	-	-	2	-	3	-	-	72	-	7	-	2	15	
Entertainment and recreation services.	7	6	-	-	-	1	-	-	1	-	-	1	-	-	-	1	
Professional and related services.....	124	117	1	-	-	1	1	3	1	-	1	-	109	3	1	6	
Public administration.....	59	54	1	-	1	1	1	1	-	3	1	-	3	43	1	4	
Unemployed.....	60	17	2	-	-	8	1	1	-	1	2	-	2	-	27	16	
Not in labor force.....	404	43	8	-	1	6	2	4	2	2	11	-	5	2	15	346	
Male, 16 years old and over.....	489	335	28	2	32	119	26	43	9	7	9	2	24	34	24	130	
Employed.....	343	314	23	2	31	111	25	41	9	6	8	2	22	34	5	24	
Agriculture, forestry, and fisheries..	29	22	18	-	1	2	-	-	-	-	-	1	-	-	-	7	
Mining.....	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	
Construction.....	28	26	1	-	23	1	-	1	-	-	-	-	-	-	-	2	
Manufacturing.....	118	114	1	1	4	98	1	7	-	1	1	-	-	-	-	4	
Transportation, communications, and other public utilities.....	27	23	-	-	-	2	20	-	-	-	-	-	-	1	3	1	
Wholesale and retail trade.....	43	39	1	-	2	6	1	29	-	-	-	-	-	-	1	3	
Finance, insurance, and real estate...	10	10	-	-	-	-	1	1	8	-	-	-	-	-	-	1	
Business and repair services.....	9	8	-	-	-	-	2	1	-	3	1	-	1	-	-	1	
Personal services.....	9	8	1	-	-	1	-	-	-	-	6	-	-	-	-	1	
Entertainment and recreation services.	5	4	-	-	-	1	-	-	1	-	-	1	-	-	-	1	
Professional and related services.....	21	21	-	-	-	-	-	1	-	-	-	-	18	2	-	1	
Public administration.....	43	38	1	-	1	-	-	1	-	2	-	-	2	31	1	4	
Unemployed.....	23	8	1	-	-	5	-	1	-	-	-	-	-	-	14	1	
Not in labor force.....	123	13	4	-	1	3	1	1	-	1	1	-	1	-	5	105	
Female, 16 years old and over.....	630	314	5	1	1	44	13	28	8	6	82	-	110	16	30	286	
Employed.....	312	275	-	1	1	38	11	25	6	4	70	-	105	14	7	30	
Agriculture, forestry, and fisheries..	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
Mining.....	1	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	
Construction.....	1	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	
Manufacturing.....	43	38	-	-	-	34	1	1	-	1	1	-	-	-	-	5	
Transportation, communications, and other public utilities.....	9	9	-	-	-	-	9	-	-	-	-	-	-	-	-	-	
Wholesale and retail trade.....	27	24	-	-	-	1	-	19	1	-	1	-	2	-	1	3	
Finance, insurance, and real estate...	10	8	-	-	-	-	-	-	5	-	-	-	2	1	1	1	
Business and repair services.....	6	3	-	-	-	-	-	-	-	2	-	-	1	-	3	-	
Personal services.....	93	77	-	-	-	1	-	3	-	-	66	-	-	-	2	14	
Entertainment and recreation services.	2	2	-	-	-	-	-	-	-	-	1	-	-	-	-	6	
Professional and related services.....	103	96	-	-	-	1	1	2	-	-	1	-	91	1	1	6	
Public administration.....	16	16	-	-	-	1	1	-	-	1	1	-	-	12	-	-	
Unemployed.....	37	9	1	-	-	3	1	-	-	1	2	-	1	-	13	15	
Not in labor force.....	281	30	4	-	-	3	1	3	2	1	10	-	4	2	10	241	
Represents zero.																	

Represents zero.

Table 42. Indexes—Class of Worker by Race and Sex

(See text for explanation of indexes. Restricted to persons employed in both CPS and census)

Class of worker and sex	Total					White					Negro				
	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
TOTAL EMPLOYED, 16 YEARS OLD AND OVER															
L-fold index.....	17	15.2 to 18.0	(X)	(X)	(X)	16	14.5 to 17.4	(X)	(X)	(X)	24	18.9 to 30.3	(X)	(X)	(X)
Employed in agriculture:															
Wage and salary workers.....	33	26.0 to 42.2	1.2	0.4	0.2 to 0.6	35	26.7 to 44.5	1.1	0.4	0.2 to 0.6	24	10.7 to 52.3	2.0	+0.3	-0.6 to 1.2
Self-employed workers.....	17	12.9 to 21.9	2.3	-0.1	-0.3 to 0.1	15	11.4 to 20.2	2.4	-0.2	-0.4 to 0.0	42	20.0 to 87.5	1.4	+0.2	-0.8 to 1.1
Unpaid family workers.....	53	27.5 to 100.0	0.1	-0.1	-0.2 to 0.0	50	25.0 to 100.0	0.1	-0.1	-0.1 to 0.0	(S)	(S)	0.2	(S)	(S)
Employed in nonagricultural industries:															
Private wage and salary workers..	16	14.3 to 17.2	72.9	+0.5	-0.1 to 1.1	15	13.5 to 16.4	73.2	0.7	0.1 to 1.3	23	17.9 to 30.3	71.3	+1.5	-4.1 to 1.1
Government workers.....	12	10.9 to 13.9	16.8	-0.2	-0.6 to 0.2	12	10.1 to 13.2	16.3	-0.3	-0.8 to 0.8	19	14.0 to 26.3	22.4	-1.0	-1.2 to 3.2
Self-employed workers.....	23	20.3 to 26.8	6.2	-0.3	-0.7 to 0.1	22	19.3 to 25.8	6.4	-0.3	-0.7 to 0.1	47	28.1 to 77.9	2.7	+0.2	-1.2 to 1.5
Unpaid family workers.....	47	32.7 to 67.7	0.5	-0.1	-0.3 to 0.0	47	32.7 to 67.7	0.5	-0.1	-0.3 to 0.0	(S)	(S)	0.0	(S)	(S)
MALE EMPLOYED, 16 YEARS OLD AND OVER															
L-fold index.....	16	14.3 to 17.7	(X)	(X)	(X)	15	13.7 to 17.2	(X)	(X)	(X)	22	15.8 to 30.3	(X)	(X)	(X)
Employed in agriculture:															
Wage and salary workers.....	34	26.0 to 43.4	1.6	0.6	0.3 to 0.9	35	26.5 to 45.6	1.4	0.6	0.3 to 0.9	24	10.9 to 53.3	3.8	+0.6	-1.1 to 2.3
Self-employed workers.....	16	12.5 to 21.5	3.6	-0.3	-0.6 to 0.0	15	10.9 to 19.7	3.7	-0.4	-0.7 to -0.1	42	20.2 to 88.6	2.6	+0.3	-1.5 to 2.1
Unpaid family workers.....	(S)	(S)	0.1	(S)	(S)	(S)	(S)	0.1	(S)	(S)	(S)	(S)	0.3	(S)	(S)
Employed in nonagricultural industries:															
Private wage and salary workers..	15	13.1 to 16.6	72.8	+0.2	-0.5 to 0.9	14	12.6 to 16.1	73.1	+0.4	-0.3 to 1.1	20	13.9 to 29.9	71.3	+2.9	-6.2 to 0.5
Government workers.....	11	9.1 to 13.0	14.2	+0.0	-0.5 to 0.4	11	8.7 to 12.7	13.8	+0.1	-0.6 to 0.3	14	8.4 to 24.2	18.8	+1.3	-1.2 to 3.7
Self-employed workers.....	22	18.8 to 26.0	7.7	-0.4	-0.9 to 0.1	21	18.1 to 25.4	7.9	-0.5	-1.0 to 0.0	41	21.9 to 78.1	3.2	+1.0	-1.1 to 3.0
Unpaid family workers.....	(S)	(S)	0.0	(S)	(S)	(S)	(S)	0.0	(S)	(S)	(S)	(S)	0.0	(S)	(S)
FEMALE EMPLOYED, 16 YEARS OLD AND OVER															
L-fold index.....	18	15.7 to 20.7	(X)	(X)	(X)	17	14.6 to 19.7	(X)	(X)	(X)	27	19.5 to 37.7	(X)	(X)	(X)
Employed in agriculture:															
Wage and salary workers.....	31	14.6 to 64.0	0.4	+0.0	-0.2 to 0.2	33	16.0 to 70.1	0.4	+0.0	-0.3 to 0.2	(S)	(S)	0.0	(S)	(S)
Self-employed workers.....	(S)	(S)	0.0	(S)	(S)	(S)	(S)	0.0	(S)	(S)	(S)	(S)	0.0	(S)	(S)
Unpaid family workers.....	(S)	(S)	0.2	(S)	(S)	(S)	(S)	0.2	(S)	(S)	(S)	(S)	0.0	(S)	(S)
Employed in nonagricultural industries:															
Private wage and salary workers..	17	15.0 to 20.0	73.2	1.1	0.1 to 2.1	16	13.7 to 18.9	73.4	1.3	0.3 to 2.2	27	19.2 to 37.6	71.3	+0.0	-4.1 to 4.1
Government workers.....	14	12.0 to 17.0	21.2	-0.5	-1.3 to 0.3	13	10.8 to 15.8	20.7	-0.7	-1.5 to 0.1	24	16.3 to 35.5	26.6	+0.7	-3.1 to 4.5
Self-employed workers.....	28	21.6 to 36.8	3.7	-0.1	-0.7 to 0.4	26	19.5 to 34.6	3.8	-0.1	-0.6 to 0.5	61	27.6 to 100.0	2.2	+0.7	-2.7 to 1.2
Unpaid family workers.....	46	31.5 to 67.8	1.2	-0.4	-0.8 to 0.0	46	31.6 to 67.9	1.4	-0.4	-0.9 to 0.0	(S)	(S)	0.0	(S)	(S)

*Not different from zero at the 95-percent confidence level.

S Does not meet publication standards.

X Not applicable.

Source: Table 36.

Table 43. Indexes—Occupation by Sex

(See text for explanation of indexes. Restricted to persons employed in both CPS and census)

Occupation and sex	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
TOTAL EMPLOYED, 16 YEARS OLD AND OVER					
L-fold index.....	33	32.0 to 34.2	(X)	(X)	(X)
Professional, technical, and kindred workers:					
Engineers.....	36	29.7 to 44.7	1.7	*0.1	-0.2 to 0.3
Physicians, dentists, and related practitioners.....	5	2.2 to 12.3	0.6	*0.0	-0.1 to 0.1
Registered nurses.....	16	10.7 to 23.6	1.0	*0.1	-0.1 to 0.2
Other health workers, except practitioners.....	33	22.1 to 48.2	0.5	*0.0	-0.1 to 0.1
Teachers, elementary and secondary schools.....	10	8.1 to 13.6	3.6	*0.2	0.0 to 0.4
Other professional, technical, and kindred workers....	28	25.4 to 31.8	7.6	*0.4	-0.1 to 0.8
Managers and administrators:					
Salaried.....	37	34.0 to 41.2	8.9	-1.6	-2.2 to -1.1
Self-employed.....	49	41.8 to 57.6	2.7	-1.2	-1.5 to -0.9
Sales workers:					
Retail trade.....	36	30.8 to 41.4	3.3	*0.2	-0.2 to 0.5
Other industries.....	38	32.9 to 44.6	2.5	0.9	0.6 to 1.3
Clerical and kindred workers:					
Bookkeepers.....	41	34.2 to 48.7	1.9	0.4	0.1 to 0.7
Secretaries, stenographers, and typists.....	34	30.1 to 38.2	4.6	2.1	1.6 to 2.5
Other clerical and kindred workers.....	42	38.3 to 45.1	11.6	-2.2	-2.9 to -1.6
Craftsmen and kindred workers:					
Construction craftsmen.....	25	21.4 to 29.8	3.9	*-0.1	-0.5 to 0.2
Foremen, n.e.c.....	44	37.2 to 52.3	2.0	*0.1	-0.2 to 0.4
Machinists.....	54	40.7 to 72.0	0.7	-0.2	-0.4 to -0.1
Mechanics and repairmen.....	35	29.7 to 40.8	2.9	*0.3	0.0 to 0.6
Metal craftsmen, except mechanics and machinists.....	36	27.2 to 47.8	0.9	*0.1	-0.1 to 0.2
Other craftsmen and kindred workers.....	40	34.5 to 46.0	3.1	0.3	0.0 to 0.7
Operatives, except transport:					
Durable goods manufacturing.....	28	24.4 to 31.6	5.9	*0.0	-0.4 to 0.4
Nondurable goods manufacturing.....	24	20.1 to 27.8	4.4	*0.0	-0.3 to 0.3
Other industries.....	39	33.1 to 45.1	2.5	0.8	0.4 to 1.1
Transport equipment operatives:					
Truck drivers.....	40	33.1 to 47.2	1.9	0.4	0.1 to 0.7
Deliverymen and routemen.....	98	79.9 to 100.0	0.7	*-0.1	-0.4 to 0.1
Other transport operatives.....	29	21.9 to 38.5	1.1	*0.1	-0.1 to 0.3
Laborers, except farm:					
Construction.....	52	40.9 to 67.1	0.8	*-0.1	-0.3 to 0.1
Freight, stock, and material handlers.....	50	42.4 to 59.1	1.9	*0.0	-0.3 to 0.3
Other laborers.....	58	49.4 to 68.0	2.0	-0.4	-0.7 to -0.1
Farmers and farm managers.....	13	9.7 to 17.8	2.3	-0.2	-0.4 to -0.1
Farm laborers and farm foremen:					
Farm laborers, unpaid family workers.....	50	25.0 to 100.0	0.1	*-0.1	-0.1 to 0.0
Farm laborers, except unpaid, and farm foremen.....	31	23.5 to 42.0	0.9	*0.2	0.0 to 0.4
Service workers, except private household:					
Cleaning service workers.....	36	30.4 to 43.1	2.3	*0.1	-0.2 to 0.4
Food service workers.....	17	13.3 to 20.7	3.3	*-0.1	-0.4 to 0.1
Health service workers.....	23	17.2 to 30.4	1.4	*0.0	-0.2 to 0.1
Personal service workers.....	21	15.9 to 27.3	1.8	*-0.2	-0.4 to 0.0
Protective service workers.....	11	7.4 to 17.5	1.2	*0.0	-0.2 to 0.1
Private household workers.....	15	10.7 to 20.6	1.7	*-0.2	-0.4 to 0.0
MALE EMPLOYED, 16 YEARS OLD AND OVER					
L-fold index.....	34	32.5 to 35.3	(X)	(X)	(X)
Professional, technical, and kindred workers:					
Engineers.....	36	29.5 to 44.7	2.6	*0.1	-0.3 to 0.5
Physicians, dentists, and related practitioners.....	6	2.9 to 14.3	1.0	*0.0	-0.1 to 0.1
Teachers, elementary and secondary schools.....	13	8.1 to 19.6	1.6	*0.1	-0.1 to 0.3
Other professional, technical, and kindred workers....	28	24.1 to 31.5	8.9	*0.5	-0.1 to 1.1
Managers and administrators:					
Salaried.....	36	32.4 to 40.2	11.9	-2.1	-2.9 to -1.4
Self-employed.....	48	40.0 to 56.8	3.7	-1.8	-2.3 to -1.3
Sales workers.....	30	25.7 to 34.5	6.2	1.2	0.6 to 1.7
Clerical and kindred workers.....	37	32.9 to 42.1	7.5	*0.6	-0.1 to 1.2
Craftsmen and kindred workers:					
Construction craftsmen.....	26	21.6 to 30.2	6.1	*-0.2	-0.7 to 0.3
Foremen, n.e.c.....	44	36.5 to 52.2	3.0	*0.1	-0.4 to 0.5
Machinists.....	53	39.3 to 70.7	1.1	-0.3	-0.6 to -0.1
Mechanics and repairmen.....	35	29.7 to 40.9	4.5	*0.5	-0.1 to 1.0
Metal craftsmen, except mechanics and machinists.....	35	26.5 to 47.0	1.3	*0.1	-0.2 to 0.4
Other craftsmen and kindred workers.....	40	34.1 to 46.3	4.4	*0.4	-0.2 to 0.9
Operatives, except transport:					
Durable goods manufacturing.....	33	28.4 to 37.8	6.4	*0.2	-0.4 to 0.7
Nondurable goods manufacturing.....	35	28.5 to 42.6	3.0	*0.0	-0.4 to 0.4
Other industries.....	42	35.7 to 50.4	2.9	1.0	0.5 to 1.4

See footnotes at end of table.

Table 43. Indexes—Occupation by Sex—Continued

(See text for explanation of indexes. Restricted to persons employed in both CPS and census)

Occupation and sex	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
MALE EMPLOYED, 16 YEARS OLD AND OVER--Continued					
Transport equipment operatives:					
Truck drivers.....	34	27.9 to 41.8	2.9	*0.1	-0.3 to 0.5
Other transport operatives.....	38	30.7 to 46.0	2.4	0.6	0.2 to 1.0
Laborers, except farm:					
Construction.....	53	41.1 to 67.5	1.3	*-0.1	-0.4 to 0.2
Freight, stock, and material handlers.....	48	40.0 to 57.1	2.7	*0.0	-0.4 to 0.5
Other laborers.....	57	48.7 to 67.7	3.0	-0.7	-1.2 to -0.2
Farmers and farm managers.....	13	9.4 to 17.5	3.6	-0.4	-0.7 to -0.1
Farm laborers and farm foremen.....	28	20.1 to 38.1	1.3	*0.3	0.0 to 0.5
Service workers, except private household:					
Protective service workers.....	10	6.5 to 16.4	1.9	*-0.1	-0.3 to 0.1
Other service workers.....	29	24.5 to 34.5	4.9	*0.2	-0.3 to 0.7
Private household workers.....	(S)	(S)	0.1	(S)	(S)
FEMALE EMPLOYED, 16 YEARS OLD AND OVER					
L-fold index.....	31	29.7 to 33.4	(X)	(X)	(X)
Professional, technical, and kindred workers:					
Registered nurses.....	16	10.7 to 24.0	2.6	*0.2	-0.1 to 0.6
Other health workers, except practitioners.....	35	21.9 to 55.7	0.9	*0.0	-0.3 to 0.3
Teachers, elementary and secondary schools.....	10	7.2 to 13.7	7.1	*0.4	-0.1 to 0.8
Other professional, technical, and kindred workers....	29	24.0 to 36.1	6.1	*0.1	-0.6 to 0.8
Managers and administrators, except farm:					
Salaried.....	48	39.1 to 59.9	3.7	-0.8	-1.4 to -0.1
Self-employed.....	60	40.3 to 87.9	0.9	*-0.2	-0.6 to 0.2
Sales workers:					
Retail trade.....	30	24.1 to 37.8	4.6	*0.5	-0.1 to 1.2
Clerical workers:					
Bookkeepers.....	38	31.9 to 47.4	4.5	*0.5	-0.2 to 1.2
Secretaries, stenographers, and typists.....	32	28.3 to 36.8	12.4	3.8	2.8 to 4.9
Craftsmen and kindred workers.....	51	38.2 to 69.1	1.5	*0.2	-0.3 to 0.7
Operatives, except transport.....	12	9.7 to 15.1	13.4	*0.3	-0.3 to 1.0
Transport equipment operatives.....	24	11.6 to 50.8	0.6	*-0.1	-0.3 to 0.1
Laborers, except farm.....	79	54.5 to 100.0	0.6	*0.0	-0.4 to 0.4
Farmers and farm managers.....	(S)	(S)	0.0	(S)	(S)
Farm laborers and farm foremen.....	25	11.3 to 55.6	0.5	*-0.1	-0.3 to 0.1
Service workers, except private household:					
Cleaning service workers.....	33	23.7 to 46.9	1.8	*0.1	-0.3 to 0.6
Food service workers.....	16	12.2 to 20.7	6.9	*-0.3	-0.9 to 0.2
Health and personal service workers.....	49	41.1 to 58.1	3.4	3.1	2.3 to 3.9
Private household workers.....	14	9.6 to 19.3	4.6	-0.5	-0.9 to -0.1

*Not different from zero at the 95-percent confidence level.

S Does not meet publication standards.

X Not applicable.

Source: Tables 37 and 38.

Table 44. Indexes—Occupation by Race and Sex

(See text for explanation of indexes. Restricted to persons employed in both CPS and census)

Occupation and sex	White					Negro				
	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
MALE EMPLOYED, 16 YEARS OLD AND OVER										
L-fold index.....	32	30.6 to 33.5	(X)	(X)	(X)	42	36.4 to 48.6	(X)	(X)	(X)
Professional, technical, and kindred workers:										
Health workers.....	12	7.0 to 20.1	1.3	*0.0	-0.2 to 0.1	(S)	(S)	0.6	(S)	(S)
Teachers, elementary and secondary schools.....	12	7.6 to 18.9	1.7	*0.1	-0.1 to 0.3	(S)	(S)	0.0	(S)	(S)
Other professional, technical, and kindred workers..	25	22.4 to 29.0	11.6	*0.5	-0.2 to 1.2	28	14.0 to 55.9	3.8	*1.9	0.0 to 3.8
Managers and administrators, except farm:										
Salaried.....	34	30.0 to 37.7	12.5	-2.9	-3.7 to -2.1	51	25.6 to 100.0	3.2	*-1.3	-3.2 to 0.6
Self-employed.....	53	45.3 to 62.5	3.8	-1.1	-1.7 to -0.6	(S)	(S)	1.0	(S)	(S)
Sales workers.....	29	25.4 to 34.1	6.6	1.3	0.7 to 1.8	(S)	(S)	1.0	(S)	(S)
Clerical workers.....	37	32.6 to 42.1	7.3	*0.7	-0.4 to 1.4	36	22.4 to 58.6	8.9	*-1.6	-4.3 to 1.1
Craftsmen and kindred workers:										
Mechanics and repairmen.....	34	29.0 to 40.4	4.7	*0.4	-0.1 to 0.9	54	28.2 to 100.0	2.2	*1.0	-1.1 to 3.0
Other craftsmen and kindred workers.....	32	29.1 to 35.5	16.3	*0.0	-0.8 to 0.9	39	25.5 to 60.6	9.6	*-0.3	-3.3 to 2.7
Operatives, except transport:										
Manufacturing.....	33	29.3 to 37.8	8.9	*0.1	-0.6 to 0.8	35	25.3 to 48.6	17.8	*0.0	-3.7 to 3.7
Other industries.....	40	33.4 to 48.4	2.8	1.0	0.5 to 1.5	63	39.5 to 100.0	4.8	*0.0	-2.8 to 2.8
Transport equipment operatives:										
Truck drivers.....	32	25.3 to 39.6	2.8	*0.1	-0.3 to 0.5	53	33.2 to 84.6	5.4	*0.6	-2.1 to 3.4
Other transport operatives...	37	29.7 to 45.4	2.4	0.6	0.2 to 1.1	54	28.3 to 100.0	2.6	*0.3	-1.7 to 2.3
Laborers, except farm.....	49	43.3 to 56.0	6.1	*-0.7	-1.4 to 0.0	54	42.2 to 69.0	20.4	*-1.6	-6.3 to 3.1
Farmers and farm managers.....	11	7.9 to 15.6	3.7	-0.4	-0.7 to -0.1	55	26.3 to 115.1	2.2	*-0.3	-2.1 to 1.5
Farm laborers and farm foremen.	28	19.9 to 39.7	1.2	*0.2	0.0 to 0.5	26	11.7 to 57.6	3.5	*0.6	-1.1 to 2.3
Service workers, except private household:										
Food, health, and personal service workers.....	21	14.9 to 28.6	2.1	*-0.2	-0.4 to 0.1	17	6.6 to 45.4	3.8	*0.0	-1.4 to 1.4
Other service workers.....	25	20.6 to 31.0	4.2	*0.2	-0.3 to 0.6	33	20.8 to 52.9	8.9	*1.3	-1.5 to 4.1
Private household workers.....	(S)	(S)	0.0	(S)	(S)	(S)	(S)	0.3	(S)	(S)
FEMALE EMPLOYED, 16 YEARS OLD AND OVER										
L-fold index.....	26	23.8 to 27.6	(X)	(X)	(X)	23	18.4 to 29.4	(X)	(X)	(X)
Professional, technical, and kindred workers:										
Health workers.....	18	13.0 to 25.6	3.8	*0.0	-0.5 to 0.5	42	20.2 to 88.5	1.8	2.6	0.5 to 5.3
Teachers, elementary and secondary schools.....	10	6.9 to 13.7	7.0	*0.4	-0.1 to 0.8	5	1.4 to 19.2	7.6	*0.0	-1.3 to 1.3
Other professional, technical, and kindred workers..	29	23.4 to 35.9	6.2	*0.3	-0.4 to 1.1	42	20.2 to 88.7	4.0	-1.8	-3.9 to 0.2
Managers and administrators, except farm.....	49	40.1 to 59.3	5.0	-1.1	-1.9 to -0.3	(S)	(S)	0.7	(S)	(S)
Sales workers:										
Retail trade.....	30	23.8 to 37.6	4.9	*0.7	0.0 to 1.4	(S)	(S)	1.8	(S)	(S)
Other industries.....	48	32.3 to 72.7	0.7	0.5	0.1 to 0.9	(S)	(S)	0.0	(S)	(S)
Clerical workers:										
Secretaries, stenographers, and typists.....	26	22.2 to 30.4	13.3	*1.4	-0.4 to 2.4	18	7.6 to 43.2	4.4	1.8	0.4 to 4.3
Other clerical workers.....	32	29.2 to 36.2	25.6	-1.9	-3.3 to -0.5	31	18.8 to 52.2	10.6	*-1.8	-4.7 to 1.1
Craftsmen and kindred workers..	54	39.6 to 73.8	1.5	*0.0	-0.5 to 0.6	(S)	(S)	1.1	(S)	(S)
Operatives, except transport...	12	9.4 to 15.1	13.3	*0.4	-0.3 to 1.0	14	7.7 to 26.7	14.9	*0.0	-2.4 to 2.4
Transport equipment operatives.	23	10.5 to 51.4	0.6	*-0.2	-0.4 to 0.1	(S)	(S)	0.4	(S)	(S)
Laborers, except farm.....	78	53.0 to 113.9	0.7	*0.0	-0.5 to 0.4	(S)	(S)	0.0	(S)	(S)
Farmers and farm managers.....	(S)	(S)	0.0	(S)	(S)	(S)	(S)	0.0	(S)	(S)
Farm laborers and farm foremen.	27	12.4 to 60.7	0.5	*-0.2	-0.4 to 0.1	(S)	(S)	0.0	(S)	(S)
Service workers, except private household:										
Food service workers.....	16	11.8 to 21.0	6.5	*-0.2	-0.7 to 0.4	18	9.4 to 35.0	10.9	*-1.8	-4.1 to 0.5
Health and personal service workers.....	21	15.9 to 26.5	6.3	*-0.3	-0.9 to 0.3	29	18.5 to 47.0	13.8	*-2.2	-5.4 to 1.0
Other service workers.....	40	27.9 to 56.4	1.4	0.5	0.2 to 0.9	36	21.2 to 61.1	6.6	*2.2	-0.6 to 5.0
Private household workers.....	19	12.6 to 28.4	2.7	*-0.5	-0.8 to 0.0	9	4.4 to 17.7	21.5	*-1.5	-3.6 to 0.7

*Not different from zero at the 95-percent confidence level.

S Does not meet publication standards.

X Not applicable.

Source: Table 38.

Table 45. Indexes—Major Occupation Group by Race and Sex
(See text for explanation of indexes. Restricted to persons employed in both CPS and census)

Major occupation group and sex	Total					White					Negro				
	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
TOTAL EMPLOYED, 16 YEARS OLD AND OVER															
L-fold index.....	26	25.3 to 27.5	(X)	(X)	(X)	26	25.1 to 27.4	(X)	(X)	(X)	30	26.2 to 34.5	(X)	(X)	(X)
Professional, technical, and kindred workers.....	20	18.1 to 22.1	15.0	0.7	0.2 to 1.2	20	18.1 to 22.2	15.5	0.6	0.1 to 1.2	23	15.1 to 34.6	8.7	*1.5	-0.1 to 3.2
Managers and administrators, except farm.....	39	35.5 to 42.1	11.6	-2.8	-3.4 to -2.2	38	35.1 to 41.7	12.3	-3.0	-3.6 to -2.3	63	34.3 to 103.2	2.6	*-0.7	-2.1 to 0.7
Sales workers.....	30	26.9 to 34.1	5.9	1.1	0.7 to 1.6	30	26.5 to 33.7	6.3	1.2	0.8 to 1.7	58	28.9 to 115.6	1.4	*-0.3	-1.4 to 0.7
Clerical and kindred workers.....	23	20.7 to 24.6	18.1	*0.2	-0.4 to 0.8	22	20.5 to 24.6	18.6	*0.3	-0.3 to 0.9	26	18.4 to 37.6	11.7	*-0.9	-2.8 to 1.1
Craftsmen and kindred workers.....	30	27.4 to 32.6	13.4	*0.4	-0.2 to 1.0	29	26.9 to 32.2	14.0	*0.3	-0.3 to 0.9	39	27.5 to 56.2	6.8	*0.9	-1.1 to 2.8
Operatives, except transport.....	25	22.3 to 27.0	12.7	0.8	0.3 to 1.3	24	21.6 to 26.5	12.2	0.9	0.3 to 1.4	31	23.7 to 40.3	19.0	*0.0	-2.6 to 2.6
Transport equipment operatives.....	26	21.8 to 30.3	3.6	0.4	0.1 to 0.7	25	20.6 to 29.4	3.5	0.4	0.1 to 0.7	37	24.1 to 58.4	4.4	*0.7	-0.9 to 2.2
Laborers, except farm.....	49	44.0 to 54.9	4.7	*-0.5	-0.9 to 0.0	50	44.5 to 56.8	4.2	*-0.5	-0.9 to 0.0	49	37.6 to 64.4	10.9	*-0.5	-3.1 to 2.0
Farmers and farm managers.....	13	9.7 to 17.8	2.3	*-0.2	-0.4 to 0.1	11	8.2 to 15.9	2.4	-0.2	-0.4 to -0.1	54	26.0 to 114.0	1.2	*-0.2	-1.1 to 0.8
Service workers, except private household.....	27	20.2 to 36.7	1.0	*0.1	-0.1 to 0.3	28	20.3 to 38.4	0.9	*0.1	-0.1 to 0.3	26	11.5 to 56.5	1.9	*0.3	-0.6 to 1.2
Private household workers.....	19	17.0 to 21.6	10.1	*0.0	-0.4 to 0.5	19	16.5 to 21.6	9.1	*0.0	-0.4 to 0.4	22	16.1 to 29.5	21.4	*-0.2	-2.4 to 2.1
MALE EMPLOYED, 16 YEARS OLD AND OVER	15	10.7 to 20.6	1.7	*-0.2	-0.4 to 0.0	20	13.3 to 28.9	1.0	*-0.1	-0.3 to 0.0	10	5.1 to 17.8	10.2	*-0.7	-1.8 to 0.5
FEMALE EMPLOYED, 16 YEARS OLD AND OVER															
L-fold index.....	31	29.4 to 32.3	(X)	(X)	(X)	30	28.8 to 31.8	(X)	(X)	(X)	41	35.3 to 47.8	(X)	(X)	(X)
Professional, technical, and kindred workers.....	21	19.0 to 24.3	14.1	*0.7	0.0 to 1.3	22	19.0 to 24.5	14.6	*0.6	-0.1 to 1.3	27	14.1 to 52.3	4.5	2.2	0.2 to 4.2
Managers and administrators, except farm.....	38	34.1 to 41.3	15.6	-3.9	-4.8 to -3.1	37	33.8 to 41.1	16.3	-4.0	-4.9 to -3.1	51	27.6 to 96.0	4.1	*-1.9	-4.0 to 0.2
Sales workers.....	30	25.7 to 34.5	6.2	1.2	0.6 to 1.7	29	25.4 to 34.1	6.6	1.3	0.7 to 1.8	36	22.4 to 38.6	8.9	*-1.6	-4.3 to 1.1
Clerical and kindred workers.....	37	32.9 to 42.1	7.5	*0.6	-0.1 to 1.2	37	32.6 to 42.1	7.3	*0.7	0.0 to 1.4	42	28.8 to 61.0	11.8	*0.6	-2.8 to 4.1
Craftsmen and kindred workers.....	31	28.6 to 33.9	20.3	*0.5	-0.4 to 1.4	31	28.1 to 33.5	21.0	*0.5	-0.5 to 1.4	42	32.3 to 55.1	22.6	*0.0	-4.4 to 4.4
Operatives, except transport.....	32	28.9 to 35.7	12.2	1.1	0.3 to 1.8	31	27.9 to 35.0	11.6	1.1	0.4 to 1.9	39	24.8 to 61.7	8.0	*1.0	-1.9 to 3.8
Transport equipment operatives.....	26	22.2 to 31.1	5.3	0.7	0.2 to 1.2	25	20.9 to 30.1	5.2	0.7	0.2 to 1.2	54	42.2 to 69.0	20.0	*-1.6	-6.3 to 3.1
Laborers, except farm.....	48	43.1 to 54.4	7.0	-0.8	-1.5 to -0.1	49	43.3 to 55.9	6.1	*-0.7	-1.4 to 0.0	55	26.3 to 115.1	2.2	*-0.3	-2.1 to 1.5
Farmers and farm managers.....	13	9.4 to 17.5	3.6	-0.4	-0.7 to -0.1	11	7.9 to 15.6	3.7	-0.4	-0.7 to -0.1	26	11.7 to 57.6	3.5	*0.6	-1.1 to 2.3
Service workers, except private household.....	28	20.1 to 38.1	1.3	*0.3	0.0 to 0.5	28	19.9 to 39.7	1.2	*0.2	0.0 to 0.5	27	17.6 to 42.8	12.7	*1.3	-1.6 to 4.2
Private household workers.....	23	19.2 to 26.9	6.7	*0.1	-0.4 to 0.6	22	18.2 to 26.3	6.3	*0.0	-0.5 to 0.5	27	17.6 to 42.8	0.3	(S)	(S)
FEMALE EMPLOYED, 16 YEARS OLD AND OVER															
L-fold index.....	21	19.3 to 22.8	(X)	(X)	(X)	22	19.8 to 23.6	(X)	(X)	(X)	20	15.0 to 25.9	(X)	(X)	(X)
Professional, technical, and kindred workers.....	18	15.0 to 21.0	16.7	*0.7	-0.2 to 1.5	18	14.8 to 21.0	17.0	*0.7	-0.2 to 1.6	21	12.6 to 36.3	13.5	*0.7	-2.1 to 3.5
Managers and administrators, except farm.....	50	41.6 to 60.7	4.6	-1.0	-1.7 to -0.2	49	40.1 to 59.3	5.0	-1.1	-1.9 to -0.3	(S)	(S)	0.7	(S)	(S)
Sales workers.....	31	25.5 to 38.3	5.3	1.0	0.3 to 1.7	31	25.0 to 38.0	5.6	1.2	0.4 to 1.9	(S)	(S)	1.8	(S)	(S)
Clerical and kindred workers.....	20	17.5 to 22.5	36.6	*-0.4	-1.6 to 0.7	20	18.0 to 23.3	38.9	*-0.5	-1.7 to 0.8	20	11.8 to 34.0	14.9	*0.0	-2.8 to 2.8
Craftsmen and kindred workers.....	51	38.2 to 69.1	1.5	*0.2	-0.3 to 0.7	54	39.6 to 73.8	1.5	*0.0	-0.5 to 0.6	(S)	(S)	1.1	(S)	(S)
Operatives, except transport.....	12	9.7 to 15.1	13.4	*0.3	-0.3 to 1.0	12	9.4 to 15.1	13.3	*0.4	-0.3 to 1.0	14	7.7 to 26.7	14.9	*0.0	-2.4 to 2.4
Transport equipment operatives.....	24	11.6 to 50.8	0.6	*-0.1	-0.3 to 0.1	23	10.5 to 51.4	0.6	*-0.2	-0.4 to 0.1	(S)	(S)	0.4	(S)	(S)
Laborers, except farm.....	79	54.5 to 114.1	0.6	*0.0	-0.4 to 0.4	78	53.0 to 113.9	0.7	*0.0	-0.5 to 0.4	(S)	(S)	0.0	(S)	(S)
Farmers and farm managers.....	(S)	(S)	0.0	(S)	(S)	(S)	(S)	0.0	(S)	(S)	(S)	(S)	0.0	(S)	(S)
Service workers, except private household.....	25	11.3 to 55.6	0.5	*-0.1	-0.3 to 0.1	27	12.4 to 60.7	0.5	*-0.2	-0.4 to 0.1	(S)	(S)	0.0	(S)	(S)
Private household workers.....	17	14.2 to 20.2	15.8	*-0.1	-1.0 to 0.7	17	13.9 to 20.5	14.2	*-0.4	-0.8 to 0.9	20	13.1 to 30.0	31.3	*-1.8	-5.4 to 1.7
MALE EMPLOYED, 16 YEARS OLD AND OVER	14	9.6 to 19.3	4.6	*-0.5	-0.9 to -0.1	19	12.6 to 28.4	2.7	*0.0	-0.8 to 0.0	9	4.4 to 17.7	21.5	*-1.5	-3.6 to 0.7

*Not different from zero at 95-percent confidence level.

S Does not meet publication standards.

X Not applicable.

Source: Table 39.

Table 46. Indexes—Industry by Race and Sex

(See text for explanation of indexes. Restricted to persons employed in both CPS and census)

Industry, race and sex	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
TOTAL					
Total Employed, 16 Years Old and Over					
L-fold index.....	19	18.4 to 20.3	(X)	(X)	(X)
Agriculture, forestry, and fisheries.....	14	11.1 to 17.4	3.7	*0.1	-0.1 to 0.4
Mining.....	27	18.9 to 38.2	0.7	*0.1	0.0 to 0.3
Construction.....	21	18.3 to 24.6	5.9	*-0.1	-0.4 to 0.3
Manufacturing:					
Durable goods:					
Metal industries.....	29	24.6 to 34.1	3.6	*-0.2	-0.6 to 0.1
Machinery, including electrical.....	24	20.5 to 27.3	5.9	-0.6	-1.0 to -0.3
Other durable goods.....	26	23.1 to 29.4	7.2	*0.0	-0.4 to 0.5
Nondurable goods, including not specified manufacturing:					
Food and kindred products.....	28	22.6 to 34.6	2.4	-0.5	-0.8 to -0.3
Other nondurable goods.....	16	14.3 to 18.9	8.7	*0.0	-0.3 to 0.4
Transportation, communications, and other public utilities:					
Transportation.....	15	12.5 to 19.0	4.0	*-0.1	-0.3 to 0.2
Communications and other public utilities.....	13	10.1 to 16.8	3.1	*0.0	-0.2 to 0.2
Wholesale and retail trade:					
Wholesale trade.....	44	39.0 to 50.0	3.7	0.6	0.2 to 1.1
Retail trade.....	18	16.6 to 20.5	14.5	0.6	0.1 to 1.1
Finance, insurance, and real estate.....	11	8.8 to 13.5	5.4	*-0.1	-0.3 to 0.2
Business and repair services.....	34	29.3 to 40.6	2.7	0.5	0.1 to 0.8
Personal services.....	15	11.9 to 17.8	4.7	-0.3	-0.6 to -0.1
Entertainment and recreation services.....	38	27.2 to 51.8	0.6	*0.1	-0.1 to 0.2
Professional and related services:					
Health services.....	11	9.2 to 14.1	5.2	*-0.2	-0.4 to 0.1
Education services.....	7	5.4 to 8.4	8.6	*-0.2	-0.5 to 0.0
Other professional services.....	27	22.8 to 31.7	3.5	*0.2	-0.1 to 0.5
Public administration.....	15	12.3 to 17.5	5.9	*0.0	-0.3 to 0.3
Male Employed, 16 Years and Over					
L-fold index.....	20	18.6 to 21.1	(X)	(X)	(X)
Agriculture, forestry, and fisheries.....	13	10.6 to 17.1	5.5	*0.2	-0.1 to 0.6
Mining.....	28	19.2 to 39.7	1.0	*0.2	-0.1 to 0.4
Construction.....	21	18.1 to 24.7	8.6	*0.0	-0.5 to 0.5
Manufacturing:					
Metal industries.....	29	24.3 to 34.6	4.8	*-0.3	-0.7 to 0.2
Machinery, including electrical.....	25	21.5 to 29.7	7.0	-0.8	-1.3 to -0.3
Other durable goods.....	25	21.9 to 28.8	9.5	*-0.2	-0.8 to 0.4
Food and kindred products.....	28	21.8 to 35.5	2.8	-0.6	-0.9 to -0.3
Other nondurable goods.....	19	16.2 to 22.6	8.3	*0.0	-0.5 to 0.5
Transportation, communications, and other public utilities.....	13	11.1 to 16.4	8.8	*-0.1	-0.5 to 0.3
Wholesale and retail trade.....	20	18.1 to 22.8	18.0	1.0	0.3 to 1.7
Finance, insurance, and real estate.....	14	10.2 to 17.9	4.0	*0.0	-0.3 to 0.3
Business and repair services.....	35	28.8 to 41.9	3.1	0.8	0.3 to 1.2
Personal services.....	21	14.6 to 29.1	1.7	*-0.1	-0.3 to 0.2
Entertainment and recreation services.....	41	26.8 to 61.4	0.6	*-0.1	-0.3 to 0.1
Professional and related services.....	12	9.7 to 14.4	9.9	*-0.1	-0.6 to 0.3
Public administration.....	13	10.1 to 15.9	6.6	*0.1	-0.3 to 0.5
Female Employed, 16 Years Old and Over					
L-fold index.....	14	13.0 to 15.9	(X)	(X)	(X)
Agriculture, forestry, and fisheries.....	22	11.5 to 42.6	0.8	*-0.1	-0.3 to 0.1
Mining.....	20	5.4 to 74.8	0.1	*0.1	-0.1 to 0.3
Construction.....	29	18.4 to 46.8	1.2	*-0.2	-0.5 to 0.1
Manufacturing:					
Durable goods.....	13	9.7 to 16.4	8.7	*-0.1	-0.6 to 0.4
Nondurable goods.....	14	11.4 to 17.9	11.1	*-0.4	-1.0 to 0.2
Transportation, communications, and other public utilities.....	14	9.9 to 19.9	4.2	*0.0	-0.4 to 0.4
Wholesale and retail trade.....	17	14.6 to 20.2	18.7	1.7	0.8 to 2.6
Finance, insurance, and real estate.....	9	6.1 to 12.0	7.8	*-0.2	-0.6 to 0.3
Business and repair services.....	34	24.6 to 47.0	2.0	*-0.1	-0.5 to 0.4
Personal services.....	13	10.4 to 17.0	9.9	-0.7	-1.3 to -0.2
Entertainment and recreation services.....	34	20.2 to 56.0	0.7	*0.3	0.0 to 0.5
Professional and related services:					
Health services.....	10	7.5 to 13.0	10.7	*-0.3	-0.8 to 0.2
Education services.....	6	4.4 to 8.1	15.0	*-0.4	-0.9 to 0.1
Other professional services.....	30	23.9 to 37.5	4.5	*0.6	-0.1 to 1.2
Public administration.....	19	14.7 to 25.8	4.8	*-0.1	-0.6 to 0.4

See footnotes at end of table.

Table 46. Indexes—Industry by Race and Sex—Continued

(See text for explanation of indexes. Restricted to persons employed in both CPS and census)

Industry, race and sex	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
WHITE					
Total Employed, 16 Years Old and Over					
L-fold index.....	19	18.3 to 20.3	(X)	(X)	(X)
Agriculture, forestry, and fisheries.....	14	10.7 to 17.2	3.7	*0.1	-0.1 to 0.4
Mining.....	27	19.0 to 38.8	0.7	*0.1	0.0 to 0.3
Construction.....	21	18.3 to 24.9	6.0	*-0.2	-0.6 to 0.2
Manufacturing:					
Metal industries.....	29	24.6 to 34.5	3.6	*-0.3	-0.6 to 0.1
Machinery, including electrical.....	23	20.3 to 27.2	6.1	-0.6	-1.0 to -0.2
Other durable goods.....	26	23.1 to 29.8	7.3	*0.0	-0.5 to 0.5
Food and kindred products.....	28	22.7 to 35.3	2.4	-0.6	-0.8 to -0.3
Other nondurable goods.....	17	14.6 to 19.5	8.7	*0.0	-0.4 to 0.4
Transportation, communications, and other public utilities:					
Transportation.....	15	12.3 to 19.0	4.1	*-0.1	-0.4 to 0.2
Communications and other public utilities.....	13	10.2 to 17.2	3.2	*0.0	-0.2 to 0.2
Wholesale trade.....	43	38.3 to 49.2	3.9	0.7	0.2 to 1.1
Retail trade.....	18	16.2 to 20.1	14.9	0.6	0.1 to 1.1
Finance, insurance, and real estate.....	10	8.3 to 13.0	5.5	*0.0	-0.3 to 0.2
Business and repair services.....	34	28.6 to 40.1	2.8	0.5	0.2 to 0.9
Personal services.....	15	11.8 to 18.7	3.8	*-0.2	-0.4 to 0.1
Entertainment and recreation services.....	34	23.5 to 48.0	0.6	*0.1	-0.1 to 0.3
Professional and related services:					
Health services.....	12	9.5 to 14.9	4.9	*-0.2	-0.5 to 0.1
Education services.....	6	4.8 to 7.8	8.6	-0.3	-0.5 to -0.1
Other professional services.....	26	22.2 to 31.3	3.6	*0.1	-0.2 to 0.5
Public administration.....	14	11.9 to 17.5	5.6	*0.1	-0.2 to 0.4
Male Employed, 16 Years Old and Over					
L-fold index.....	20	18.5 to 21.0	(X)	(X)	(X)
Agriculture, forestry, and fisheries.....	13	10.1 to 16.8	5.3	*0.2	-0.1 to 0.6
Mining.....	27	19.0 to 39.7	1.1	*0.2	-0.1 to 0.4
Construction.....	21	17.9 to 24.8	8.6	*-0.2	-0.7 to 0.4
Manufacturing:					
Metal industries.....	29	24.3 to 35.1	4.8	*-0.3	-0.7 to 0.2
Machinery, including electrical.....	26	21.7 to 30.2	7.1	-0.7	-1.3 to -0.2
Other durable goods.....	25	21.9 to 29.2	9.4	*-0.2	-0.9 to 0.4
Food and kindred products.....	28	21.6 to 36.1	2.7	-0.6	-1.0 to -0.3
Other nondurable goods.....	20	16.6 to 23.3	8.3	*0.0	-0.6 to 0.5
Transportation, communications, and other public utilities.....	13	10.9 to 16.3	8.9	*-0.1	-0.6 to 0.3
Wholesale and retail trade.....	20	17.7 to 22.5	18.3	1.0	0.3 to 1.7
Finance, insurance, and real estate.....	13	9.8 to 17.6	4.1	*0.0	-0.3 to 0.3
Business and repair services.....	34	27.8 to 40.9	3.1	0.9	0.4 to 1.3
Personal services.....	20	13.8 to 29.2	1.6	*0.0	-0.3 to 0.2
Entertainment and recreation services.....	36	22.7 to 57.8	0.6	*0.0	-0.2 to 0.2
Professional and related services.....	12	9.4 to 14.2	10.1	-0.2	-0.6 to 0.2
Public administration.....	12	9.7 to 15.8	6.1	0.2	-0.2 to 0.5
Female Employed, 16 Years Old and Over					
L-fold index.....	14	12.9 to 15.9	(X)	(X)	(X)
Agriculture, forestry, and fisheries.....	23	12.1 to 44.8	0.8	*-0.1	-0.4 to 0.1
Mining.....	(S)	(S)	0.1	(S)	(S)
Construction.....	30	19.0 to 48.4	1.3	*-0.2	-0.6 to 0.1
Manufacturing:					
Durable goods.....	12	9.4 to 16.3	9.3	*-0.2	-0.8 to 0.4
Nondurable goods.....	15	11.5 to 18.4	11.2	*-0.4	-1.0 to 0.3
Transportation, communications, and other public utilities.....	14	10.0 to 20.7	4.3	*-0.1	-0.5 to 0.4
Wholesale and retail trade.....	17	14.3 to 20.0	19.7	1.8	0.8 to 2.7
Finance, insurance, and real estate.....	8	5.5 to 11.3	8.1	*-0.1	-0.5 to 0.4
Business and repair services.....	35	24.8 to 48.6	2.1	*-0.1	-0.6 to 0.4
Personal services.....	13	10.0 to 17.8	7.9	*-0.5	-1.0 to 0.1
Entertainment and recreation services.....	30	17.6 to 52.7	0.7	*0.4	-0.1 to 0.7
Professional and related services:					
Health services.....	10	7.6 to 13.6	10.1	*-0.5	-1.0 to 0.1
Education services.....	5	3.8 to 7.5	15.0	*-0.5	-0.9 to 0.0
Other professional services.....	29	23.0 to 37.1	4.7	*0.4	-0.3 to 1.1
Public administration.....	19	14.4 to 26.2	4.7	*0.0	-0.5 to 0.5

See footnotes at end of table.

Table 46. Indexes—Industry by Race and Sex—Continued

(See text for explanation of indexes. Restricted to persons employed in both CPS and census)

Industry, race and sex	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
NEGRO					
Total Employed, 16 Years Old and Over					
L-fold index.....	20	17.1 to 24.1	(X)	(X)	(X)
Agriculture, forestry, and fisheries.....	21	10.8 to 40.0	3.7	*0.2	-0.9 to 1.2
Mining.....	(S)	(S)	0.3	(S)	(S)
Construction.....	20	10.8 to 35.5	4.6	*0.9	-0.3 to 2.0
Manufacturing:					
Metal industries.....	24	12.1 to 48.5	2.9	*0.0	-1.0 to 1.0
Machinery, including electrical.....	30	16.2 to 56.4	3.4	*-1.0	-2.1 to 0.1
Other durable goods.....	25	16.2 to 38.6	7.5	*0.5	-1.1 to 2.1
Food and kindred products.....	25	11.8 to 51.8	2.6	*-0.2	-1.1 to 0.8
Other nondurable goods.....	13	7.4 to 22.0	9.5	*0.2	-1.1 to 1.4
Transportation, communications, and other public utilities:					
Transportation.....	20	9.3 to 40.9	2.9	*0.5	-0.5 to 1.5
Communications and other public utilities.....	10	3.3 to 29.8	2.6	*0.2	-0.5 to 0.9
Wholesale trade.....	79	46.6 to 133.9	1.4	*0.3	-1.0 to 1.7
Retail trade.....	27	18.3 to 39.4	9.3	*0.2	-1.6 to 2.0
Finance, insurance, and real estate.....	22	10.4 to 45.7	3.1	*-0.5	-1.5 to 0.5
Business and repair services.....	53	29.4 to 96.6	1.9	*-0.2	-1.4 to 1.0
Personal services.....	14	8.6 to 21.3	14.4	*-1.2	-2.7 to 0.3
Entertainment and recreation services.....	(S)	(S)	1.0	(S)	(S)
Professional and related services:					
Health services.....	7	3.5 to 15.3	8.7	*0.5	-0.5 to 1.5
Education services.....	12	6.9 to 21.6	9.2	*0.0	-1.2 to 1.2
Other professional services.....	36	20.1 to 65.9	2.0	*1.2	0.0 to 2.4
Public administration.....	17	10.5 to 28.2	9.2	*-1.0	-2.4 to 0.4
Male Employed, 16 Years Old and Over					
L-fold index.....	23	18.4 to 28.4	(X)	(X)	(X)
Agriculture, forestry, and fisheries.....	22	11.2 to 41.5	7.0	*0.3	-1.7 to 2.3
Mining.....	(S)	(S)	0.3	(S)	(S)
Construction.....	21	11.7 to 38.4	8.3	*1.6	-0.6 to 3.8
Manufacturing:					
Metal industries.....	24	11.3 to 49.7	5.1	*-0.3	-2.1 to 1.5
Machinery, including electrical.....	22	10.1 to 49.6	5.1	*-1.3	-3.0 to 0.4
Other durable goods.....	23	14.3 to 38.4	12.4	*0.0	-2.6 to 2.6
Food and kindred products.....	27	12.9 to 56.7	4.5	*-0.3	-2.1 to 1.5
Other nondurable goods.....	13	6.1 to 26.6	9.2	*1.0	-0.9 to 2.8
Transportation, communications, and other public utilities.....	18	9.0 to 36.1	7.3	*0.6	-1.3 to 2.6
Wholesale and retail trade.....	32	20.6 to 48.1	12.4	*0.6	-2.4 to 3.7
Finance, insurance, and real estate.....	16	5.4 to 48.8	3.2	*-0.3	-1.6 to 1.0
Business and repair services.....	58	29.2 to 100.0	2.6	*-0.6	-2.6 to 1.3
Personal services.....	26	9.8 to 67.2	2.6	*0.0	-1.4 to 1.4
Entertainment and recreation services.....	(S)	(S)	1.3	(S)	(S)
Professional and related services.....	17	8.4 to 36.6	6.7	*0.3	-1.5 to 2.1
Public administration.....	16	8.4 to 29.2	12.1	*-1.3	-3.4 to 0.8
Female Employed, 16 Years Old and Over					
L-fold index.....	16	12.2 to 22.0	(X)	(X)	(X)
Agriculture, forestry, and fisheries.....	(S)	(S)	0.0	(S)	(S)
Mining.....	(S)	(S)	0.4	(S)	(S)
Construction.....	(S)	(S)	0.4	(S)	(S)
Manufacturing:					
Durable goods.....	19	7.2 to 49.6	3.6	*0.7	-0.9 to 2.4
Nondurable goods.....	12	5.6 to 27.3	10.2	*-0.7	-2.7 to 1.2
Transportation, communications, and other public utilities.....	10	2.8 to 38.7	3.3	*0.7	-0.5 to 2.7
Wholesale and retail trade.....	25	13.6 to 44.7	8.7	*0.4	-2.2 to 2.9
Finance, insurance, and real estate.....	29	11.2 to 76.7	2.9	*-0.7	-2.4 to 0.9
Business and repair services.....	(S)	(S)	1.1	(S)	(S)
Personal services.....	14	8.4 to 23.2	28.0	*-2.6	-5.5 to 0.4
Entertainment and recreation services.....	(S)	(S)	0.7	(S)	(S)
Professional and related services:					
Health services.....	9	4.2 to 18.3	17.1	*1.1	-1.0 to 3.2
Education services.....	11	5.7 to 22.9	14.9	*0.0	-2.2 to 2.2
Other professional services.....	38	18.9 to 75.5	2.9	*2.2	0.0 to 4.4
Public administration.....	21	9.6 to 46.9	5.8	*-0.7	-2.7 to 1.2

*Not different from zero at the 95-percent confidence level.

S Does not meet publication standards.

X Not applicable.

Source: Table 40.

Table 47. Indexes—Major Industry Group by Race and Sex

(See text for explanation of indexes. Restricted to persons employed in both CPS and census.)

Major industry group and sex	Total					White					Negro				
	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
TOTAL EMPLOYED, 16 YEARS OLD AND OVER															
L-fold index.....	16 14.8 to 16.6	(X)	(X)	(X)	(X)	15 14.6 to 16.5	(X)	(X)	(X)	(X)	19 15.5 to 22.7	(X)	(X)	(X)	(X)
Agriculture, forestry, and fisheries.....	14 11.1 to 17.4	3.7	3.7	*0.1	-0.1 to 0.4	14 10.7 to 17.2	3.7	3.7	*0.1	-0.1 to 0.4	21 10.8 to 40.0	3.7	3.7	*0.2	-0.9 to 1.2
Mining.....	27 18.9 to 38.2	0.7	0.7	*0.1	0.0 to 0.3	27 19.0 to 38.8	0.7	0.7	*0.1	0.0 to 0.3	(S)	(S)	0.3	(S)	(S)
Construction.....	21 18.3 to 24.6	5.9	5.9	*0.1	-0.4 to 0.3	21 18.3 to 24.9	6.0	6.0	*0.2	-0.6 to 0.2	20 10.8 to 35.5	4.6	4.6	*0.9	-0.3 to 2.0
Manufacturing.....	14 13.2 to 15.9	27.8	27.8	-1.4	-1.9 to -0.8	14 13.0 to 15.8	28.1	28.1	-1.4	-2.0 to -0.9	17 11.9 to 22.9	25.8	25.8	*0.5	-2.6 to 1.6
Transportation, communications and other public utilities.....	14 11.4 to 16.0	7.1	7.1	*0.1	-0.4 to 0.3	13 11.3 to 16.0	7.3	7.3	*0.1	-0.4 to 0.2	16 8.4 to 29.1	5.4	5.4	*0.7	-0.5 to 1.8
Wholesale and retail trade.....	19 17.4 to 21.0	18.2	18.2	1.2	0.7 to 1.8	19 17.0 to 20.7	18.8	18.8	1.3	0.7 to 1.9	29 20.3 to 40.6	10.7	10.7	*0.5	-1.5 to 2.5
Finance, insurance, and real estate.....	11 8.8 to 13.5	5.4	5.4	*0.1	-0.3 to 0.2	10 8.3 to 13.0	5.5	5.5	*0.0	-0.3 to 0.2	22 10.4 to 45.7	3.1	3.1	*0.5	-1.5 to 0.5
Business and repair services.....	34 29.3 to 40.6	2.7	2.7	0.5	0.1 to 0.8	34 28.6 to 40.1	2.8	2.8	0.5	0.2 to 0.9	53 29.4 to 96.6	1.9	1.9	*0.2	-1.4 to 1.0
Personal services.....	15 11.9 to 17.8	4.7	4.7	-0.3	-0.6 to -0.1	15 11.8 to 18.7	3.8	3.8	*0.2	-0.4 to 0.1	14 8.6 to 21.3	14.4	14.4	*1.2	-2.7 to 0.3
Entertainment and recreation services.....	38 27.2 to 51.8	0.6	0.6	*0.1	-0.1 to 0.2	34 23.5 to 48.0	0.6	0.6	*0.1	-0.1 to 0.3	(S)	(S)	1.0	(S)	(S)
Professional and related services.....	10 8.8 to 11.5	17.3	17.3	*0.1	-0.5 to 0.2	10 8.4 to 11.2	17.1	17.1	*0.3	-0.7 to 0.1	13 9.1 to 19.8	19.9	19.9	*1.7	-0.1 to 3.5
Public administration.....	15 12.3 to 17.5	5.9	5.9	*0.0	-0.3 to 0.3	14 11.9 to 17.5	5.6	5.6	*0.1	-0.2 to 0.4	17 10.5 to 28.2	9.2	9.2	*1.0	-2.4 to 0.4
MALE EMPLOYED, 16 YEARS OLD AND OVER															
L-fold index.....	17 16.2 to 18.6	(X)	(X)	(X)	(X)	17 15.8 to 18.3	(X)	(X)	(X)	(X)	23 18.0 to 28.8	(X)	(X)	(X)	(X)
Agriculture, forestry, and fisheries.....	13 10.6 to 17.1	5.5	5.5	*0.2	-0.1 to 0.6	13 10.1 to 16.8	5.3	5.3	*0.2	-0.1 to 0.6	22 11.2 to 41.5	7.0	7.0	*0.3	-1.7 to 2.3
Mining.....	28 19.2 to 39.7	1.0	1.0	*0.2	-0.1 to 0.4	27 19.0 to 39.7	1.1	1.1	*0.2	-0.1 to 0.4	(S)	(S)	0.3	(S)	(S)
Construction.....	21 18.1 to 24.7	8.6	8.6	*0.0	-0.5 to 0.5	21 17.9 to 24.8	8.6	8.6	*0.2	-0.7 to 0.4	21 11.7 to 38.4	8.3	8.3	*1.6	-0.6 to 3.8
Manufacturing.....	16 14.8 to 18.3	32.4	32.4	-1.9	-2.6 to -1.1	16 14.5 to 18.1	32.3	32.3	-1.9	-2.7 to -1.1	20 13.9 to 29.1	36.3	36.3	*1.0	-4.4 to 2.5
Transportation, communications, and other public utilities.....	13 11.1 to 16.4	8.8	8.8	*0.1	-0.5 to 0.3	13 10.9 to 16.3	8.9	8.9	*0.1	-0.6 to 0.3	18 9.0 to 36.1	7.3	7.3	*0.6	-1.3 to 2.6
Wholesale and retail trade.....	20 18.1 to 22.8	18.0	18.0	1.0	0.3 to 1.7	20 17.7 to 22.5	18.3	18.3	1.0	0.3 to 1.7	32 20.6 to 48.1	12.4	12.4	*0.6	-2.4 to 3.7
Finance, insurance, and real estate.....	14 10.2 to 17.9	4.0	4.0	*0.0	-0.3 to 0.3	13 9.8 to 17.6	4.1	4.1	*0.0	-0.3 to 0.3	16 5.4 to 48.8	3.2	3.2	*0.3	-1.6 to 1.0
Business and repair services.....	35 28.8 to 41.9	3.1	3.1	0.8	0.3 to 1.2	34 27.8 to 40.9	3.1	3.1	0.9	0.4 to 1.3	58 29.2 to 116.8	2.6	2.6	*0.6	-2.6 to 1.3
Personal services.....	21 14.6 to 29.1	1.7	1.7	*0.1	-0.3 to 0.2	20 13.8 to 29.2	1.6	1.6	*0.0	-0.3 to 0.2	26 9.8 to 67.2	2.6	2.6	*0.0	-1.4 to 1.4
Entertainment and recreation services.....	41 26.8 to 61.4	0.6	0.6	*0.1	-0.3 to 0.1	36 22.7 to 57.8	0.6	0.6	*0.0	-0.2 to 0.2	(S)	(S)	1.3	(S)	(S)
Professional and related services.....	12 9.7 to 14.4	9.9	9.9	*0.1	-0.6 to 0.3	12 9.4 to 14.2	10.1	10.1	*0.2	-0.6 to 0.2	17 8.4 to 36.6	6.7	6.7	*0.3	-1.5 to 2.1
Public administration.....	13 10.1 to 15.9	6.6	6.6	*0.1	-0.3 to 0.5	12 9.7 to 15.8	6.1	6.1	*0.2	-0.2 to 0.5	16 8.4 to 29.2	12.1	12.1	*1.3	-3.4 to 0.8
FEMALE EMPLOYED, 16 YEARS OLD AND OVER															
L-fold index.....	14 12.3 to 15.2	(X)	(X)	(X)	(X)	13 12.0 to 15.1	(X)	(X)	(X)	(X)	17 12.4 to 22.9	(X)	(X)	(X)	(X)
Agriculture, forestry, and fisheries.....	22 11.5 to 42.6	0.8	0.8	*0.1	-0.3 to 0.1	23 12.1 to 44.8	0.8	0.8	*0.1	-0.4 to 0.1	(S)	(S)	0.0	(S)	(S)
Mining.....	20 5.4 to 74.8	0.1	0.1	*0.1	-0.1 to 0.3	(S)	(S)	0.1	(S)	(S)	(S)	(S)	0.4	(S)	(S)
Construction.....	29 18.4 to 46.8	1.2	1.2	*0.2	-0.5 to 0.1	30 19.0 to 48.4	1.3	1.3	*0.2	-0.6 to 0.1	(S)	(S)	0.4	(S)	(S)
Manufacturing.....	11 8.7 to 13.1	19.8	19.8	*0.5	-1.2 to 0.2	11 8.6 to 13.2	20.6	20.6	*0.6	-1.3 to 0.2	12 6.1 to 24.4	13.8	13.8	*0.0	-2.2 to 2.2
Transportation, communications, and other public utilities.....	14 9.9 to 19.9	4.2	4.2	*0.0	-0.4 to 0.4	14 10.0 to 20.7	4.3	4.3	*0.1	-0.5 to 0.4	10 2.8 to 38.7	3.3	3.3	*0.7	-0.5 to 2.7
Wholesale and retail trade.....	17 14.6 to 20.2	18.7	18.7	1.7	0.8 to 2.6	17 14.3 to 20.0	19.7	19.7	1.8	0.8 to 2.7	25 13.6 to 44.7	8.7	8.7	*0.4	-2.2 to 2.9
Finance, insurance, and real estate.....	9 6.1 to 12.0	7.8	7.8	*0.2	-0.6 to 0.3	8 5.5 to 11.3	8.1	8.1	*0.1	-0.5 to 0.4	29 11.2 to 76.7	2.9	2.9	*0.7	-2.4 to 0.9
Business and repair services.....	34 24.6 to 47.0	2.0	2.0	*0.1	-0.5 to 0.4	35 24.8 to 48.6	2.1	2.1	*0.1	-0.6 to 0.4	(S)	(S)	1.1	(S)	(S)
Personal services.....	13 10.4 to 17.0	9.9	9.9	*0.7	-1.3 to -0.2	13 10.0 to 17.8	7.9	7.9	*0.5	-1.0 to 0.7	14 8.4 to 23.2	28.0	28.0	*2.6	-5.5 to 0.4
Entertainment and recreation services.....	34 20.2 to 56.0	0.7	0.7	*0.3	0.0 to 0.5	30 17.6 to 52.7	0.7	0.7	*0.1	0.1 to 0.7	(S)	(S)	0.7	(S)	(S)
Professional and related services.....	10 8.3 to 12.0	30.1	30.1	*0.1	-0.9 to 0.6	9 7.7 to 11.5	29.8	29.8	*0.6	-1.3 to 0.2	15 9.4 to 23.5	34.9	34.9	*3.3	0.0 to 6.5
Public administration.....	19 14.7 to 25.8	4.8	4.8	*0.1	-0.6 to 0.4	19 14.4 to 26.2	4.7	4.7	*0.0	-0.5 to 0.5	21 9.6 to 46.9	5.8	5.8	*0.7	-2.7 to 1.2

*Not different from zero at the 95-percent confidence level.

S Does not meet publication standards.

X Not applicable.

Source: Table 41.

Table 48. Total Money Income in 1969 of Persons by Sex

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total	Census classification																
		Without Income	Total	Loss	\$1 to \$999	\$1,000 to \$1,999	\$2,000 to \$2,999	\$3,000 to \$3,999	\$4,000 to \$4,999	\$5,000 to \$5,999	With Income				\$25,000 or more	Median income (dol.)		
											\$6,000 to \$6,999	\$7,000 to \$7,999	\$8,000 to \$8,999	\$9,000 to \$9,999			\$10,000 to \$11,999	\$15,000 to \$24,999
BOTH SEXES																		
14 years old and over..	15,460	3,634	11,826	13	2,030	1,462	1,058	991	869	857	780	711	626	489	1,252	500	188	4,413
Without income.....	3,421	2,834	587	1	360	80	44	33	16	12	13	10	7	5	5	-	1	913
With income.....	12,039	800	11,239	12	1,670	1,382	1,014	958	853	845	767	701	619	484	1,247	500	187	4,684
Loss.....	32	4	28	5	3	2	3	2	4	1	-	3	3	1	2	2	-	500
\$1 to \$999.....	2,200	559	1,641	2	1,255	210	61	40	20	20	11	3	5	4	7	1	2	652
\$1,000 to \$1,999.....	1,497	118	1,379	1	801	188	188	75	27	19	17	6	4	2	7	6	-	1,577
\$2,000 to \$2,999.....	1,088	40	1,048	-	74	168	526	143	49	22	19	10	9	3	16	6	-	2,536
\$3,000 to \$3,999.....	979	22	957	-	73	173	124	479	112	52	18	10	8	6	12	6	-	3,492
\$4,000 to \$4,999.....	881	11	870	-	33	33	45	121	45	112	34	27	7	11	15	9	-	4,500
\$5,000 to \$5,999.....	828	9	819	-	20	22	20	41	102	407	118	33	19	8	20	5	-	5,498
\$6,000 to \$6,999.....	788	11	777	-	10	13	8	17	50	116	374	97	36	18	21	15	-	6,467
\$7,000 to \$7,999.....	745	5	740	-	7	11	17	10	20	44	98	355	88	28	49	8	-	7,459
\$8,000 to \$8,999.....	622	6	616	-	2	8	6	8	10	16	38	89	305	67	58	9	-	8,439
\$9,000 to \$9,999.....	478	2	476	-	3	9	3	7	5	11	14	18	61	237	101	4	-	9,451
\$10,000 to \$14,999.....	1,284	10	1,274	-	4	28	11	9	8	22	18	32	63	89	80	98	31	12,047
\$15,000 to \$24,999.....	1,473	1	1,472	-	2	2	3	4	5	2	7	9	13	8	70	313	34	18,546
\$25,000 or more.....	144	2	142	-	2	2	3	2	1	1	1	-	1	2	9	18	100	25,000+
Median income.....dol..	4,254	708	4,651	500	663	1,598	2,485	3,457	4,488	5,483	6,445	7,430	8,438	9,397	11,834	17,588	25,000+	(X)
MALE																		
14 years old and over....	7,210	620	6,590	9	611	543	408	431	387	464	498	539	512	409	1,132	466	181	6,888
Without income.....	509	390	119	-	70	21	11	7	3	1	3	-	1	-	2	-	-	850
With income.....	6,701	230	6,471	9	541	522	397	424	384	463	495	539	511	409	1,130	466	181	7,001
Loss.....	23	-	23	4	3	1	3	2	4	1	-	1	-	-	2	2	-	3,250
\$1 to \$999.....	658	160	498	1	369	66	13	17	6	7	8	3	2	3	2	-	-	672
\$1,000 to \$1,999.....	534	34	500	1	84	257	63	30	16	14	12	8	2	2	5	6	-	1,618
\$2,000 to \$2,999.....	447	11	436	-	30	82	188	70	16	15	12	3	4	1	11	2	-	2,564
\$3,000 to \$3,999.....	422	4	418	-	20	34	59	178	53	32	59	15	5	3	8	3	-	3,539
\$4,000 to \$4,999.....	408	3	405	-	4	11	24	66	18	63	20	18	4	7	11	9	-	4,580
\$5,000 to \$5,999.....	429	3	426	-	11	10	12	24	54	188	67	20	14	3	15	4	-	5,532
\$6,000 to \$6,999.....	501	2	499	-	7	6	5	6	32	69	235	18	32	11	18	12	-	6,530
\$7,000 to \$7,999.....	573	1	572	-	4	9	10	6	12	31	71	280	66	25	46	7	-	7,511
\$8,000 to \$8,999.....	526	4	522	-	2	5	3	7	6	12	31	78	257	55	55	8	-	8,455
\$9,000 to \$9,999.....	422	1	421	-	2	7	2	6	4	11	11	16	35	204	95	4	-	9,468
\$10,000 to \$14,999.....	1,175	6	1,169	-	3	22	9	7	7	18	16	30	59	85	790	93	30	12,079
\$15,000 to \$24,999.....	450	1	449	-	1	1	3	4	5	2	7	9	12	7	65	299	34	18,629
\$25,000 or more.....	133	-	133	-	1	1	3	1	1	-	1	-	1	2	7	17	98	25,000+
Median income.....dol..	6,857	719	7,053	500	725	1,727	2,636	3,522	4,577	5,529	6,530	7,513	8,500	9,458	11,880	17,776	25,000+	(X)
FEMALE																		
14 years old and over....	8,250	3,014	5,236	4	1,419	919	650	560	482	393	282	172	114	80	120	34	7	2,425
Without income.....	2,912	2,444	468	1	290	59	33	26	13	11	10	10	6	5	3	-	1	803
With income.....	5,338	570	4,768	3	1,129	860	617	534	469	382	272	162	108	75	117	34	6	2,635
Loss.....	9	4	5	1	-	1	-	-	-	-	-	2	-	-	-	-	-	7,250
\$1 to \$999.....	1,542	399	1,143	1	886	144	48	23	11	13	9	3	3	1	5	1	-	644
\$1,000 to \$1,999.....	963	84	879	-	142	534	125	45	11	5	9	4	2	2	5	4	-	1,557
\$2,000 to \$2,999.....	641	29	612	-	44	86	338	73	33	7	7	7	5	2	5	4	-	2,521
\$3,000 to \$3,999.....	557	18	539	-	26	39	65	301	59	20	10	4	5	2	4	3	-	3,463
\$4,000 to \$4,999.....	473	8	465	-	12	22	21	55	272	49	14	9	3	4	4	-	-	4,450
\$5,000 to \$5,999.....	399	6	393	-	9	12	8	17	48	219	51	13	5	5	5	1	-	5,468
\$6,000 to \$6,999.....	287	9	278	-	3	7	3	11	18	47	139	33	22	7	3	3	-	6,360
\$7,000 to \$7,999.....	172	4	168	-	3	2	3	4	4	13	27	7	11	48	3	1	-	7,267
\$8,000 to \$8,999.....	96	2	94	-	-	3	-	1	4	4	4	3	2	3	3	1	-	8,354
\$9,000 to \$9,999.....	56	1	55	-	1	2	-	-	1	6	-	2	6	33	6	-	-	9,348
\$10,000 to \$14,999.....	109	4	105	-	1	6	2	2	1	4	2	2	4	4	70	5	-	11,679
\$15,000 to \$24,999.....	23	-	23	-	1	1	-	-	-	-	-	-	-	-	5	14	-	16,786
\$25,000 or more.....	11	2	9	-	1	1	-	-	-	1	-	-	-	-	2	1	-	11,250
Median income.....dol..	2,242	704	2,583	500	637	1,534	2,401	3,419	4,432	5,443	6,302	7,120	8,104	9,015	11,321	13,000	4,000	(X)

- Represents zero. X Not applicable.

Table 49. Wage or Salary Income in 1969 of Persons by Sex

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total	Census classification																
		Without wage or salary income	With wage or salary income															
			Total	\$1 to \$999	\$1,000 to \$1,999	\$2,000 to \$2,999	\$3,000 to \$3,999	\$4,000 to \$4,999	\$5,000 to \$5,999	\$6,000 to \$6,999	\$7,000 to \$7,999	\$8,000 to \$8,999	\$9,000 to \$9,999	\$10,000 to \$14,999	\$15,000 to \$24,999	\$25,000 or more	Median income (dol.)	
MALE	7,210	1,884	5,326	529	322	224	279	296	385	465	519	462	376	1,001	370	98	7,314	
	1,827	1,537	290	101	33	21	15	22	25	20	8	8	4	16	8	9	2,524	
	5,383	347	5,036	428	289	203	264	274	360	445	511	454	372	985	362	89	7,499	
	626	195	431	343	36	5	13	7	7	8	3	1	4	3	1	-	1,628	
	308	35	273	38	173	24	11	7	13	4	3	1	-	1	1	-	1,569	
	227	9	218	12	25	118	30	10	7	4	3	3	-	3	3	-	2,610	
	279	15	264	11	5	27	144	37	18	4	7	2	2	7	2	-	3,618	
	293	9	284	4	2	9	29	18	47	16	14	5	2	6	2	-	4,662	
	356	11	345	8	7	6	14	28	174	56	15	15	3	17	-	2	5,629	
	444	8	436	5	2	4	6	18	44	248	59	26	8	11	5	-	6,560	
	550	14	536	4	7	5	5	10	23	56	310	55	25	29	5	2	7,510	
	475	18	457	3	4	1	3	8	20	56	56	32	216	77	5	1	8,511	
	382	11	371	-	2	4	6	1	5	10	11	32	216	77	5	1	9,525	
	1,022	14	1,008	1	23	2	3	4	13	17	25	44	56	740	71	9	12,135	
	351	2	349	-	1	1	-	2	2	8	6	4	45	257	22	22	19,066	
	\$25,000 or more.....	70	64	-	-	-	-	-	-	-	-	-	1	1	1	9	52	25,000+
	Median income.....dol..	7,288	890	7,498	624	1,627	2,614	3,542	4,514	5,506	6,526	7,498	8,452	9,426	11,983	18,307	25,000+	(X)
FEMALE	8,253	4,472	3,781	939	492	427	464	421	363	274	137	96	60	93	12	3	3,070	
	4,364	4,025	339	170	36	29	35	16	16	13	10	4	4	6	-	-	997	
	3,889	447	3,442	769	456	398	429	405	347	261	127	92	56	87	12	3	3,228	
	1,120	324	796	568	68	19	13	12	7	3	1	1	1	2	-	1	596	
	512	41	471	57	306	61	23	9	4	8	-	-	-	2	-	-	1,583	
	419	26	393	13	44	254	47	20	-	5	2	2	2	3	2	1	2,549	
	447	18	429	12	14	39	287	41	14	6	6	3	2	2	2	1	3,521	
	415	13	402	10	12	13	40	251	41	14	5	2	3	1	-	1	4,483	
	359	5	354	3	7	7	11	40	227	39	9	4	3	4	-	-	5,480	
	263	10	253	2	1	2	4	15	40	155	24	5	2	2	1	-	6,403	
	142	5	137	1	1	3	3	6	8	21	71	17	4	1	1	-	7,359	
	78	1	77	1	1	-	1	-	3	6	7	50	6	2	-	-	8,390	
	45	1	44	-	-	-	-	-	-	3	1	4	33	3	-	-	9,424	
	80	3	77	2	2	-	-	-	1	3	1	1	2	2	1	-	11,976	
	\$15,000 to \$24,999.....	8	8	-	-	-	-	-	-	-	-	-	1	2	62	1	-	15,000
	\$25,000 or more.....	1	1	-	-	-	-	-	-	-	-	-	-	-	3	4	-	20,000
	Median income.....dol..	2,746	690	3,142	576	1,523	2,469	3,458	4,462	5,474	6,358	7,232	8,220	9,212	11,734	8,000	2,500	(X)

- Represents zero. X Not applicable.

Table 50. Nonfarm Self-Employment Income in 1969 of Persons by Sex

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent households)

CPS classification	Census classification																	
	Total	Without nonfarm self- employment income	With nonfarm self-employment income															
			Total	Loss	\$1 to \$999	\$1,000 to \$1,999	\$2,000 to \$2,999	\$3,000 to \$3,999	\$4,000 to \$4,999	\$5,000 to \$5,999	\$6,000 to \$6,999	\$7,000 to \$7,999	\$8,000 to \$8,999	\$9,000 to \$9,999	\$10,000 to \$14,999	\$15,000 to \$24,999	\$25,000 or more	Median income (dol.)
MALE	7,210	6,640	570	28	79	54	37	39	31	50	36	27	24	16	59	43	47	5,340
	14 years old and over.....																	
	Without nonfarm self-employment income.....	6,633	204	14	46	25	12	14	13	16	10	10	5	4	17	5	13	3,357
	With nonfarm self-employment income.....																	
	Loss.....	577	366	14	33	29	25	25	18	34	26	17	19	12	42	38	34	6,192
	\$1 to \$999.....	37	17	8	1	4	4	4	1	1	1	2	1	1	1	2	1	500
	\$1,000 to \$1,999.....	114	80	22	12	8	2	4	1	1	1	1	1	1	1	1	1	773
	\$2,000 to \$2,999.....	45	18	27	5	8	1	1	1	2	1	1	1	2	2	1	1	1,792
	\$3,000 to \$3,999.....	36	14	22	1	1	1	1	1	1	1	1	1	2	2	3	1	2,750
	\$4,000 to \$4,999.....	34	12	26	2	3	5	1	1	4	1	1	2	2	1	1	1	3,900
	\$5,000 to \$5,999.....	32	6	22	1	1	2	2	1	11	4	4	2	2	1	1	1	4,250
	\$6,000 to \$6,999.....	38	13	25	1	2	2	2	1	2	4	2	2	1	1	3	1	5,682
	\$7,000 to \$7,999.....	35	6	29	1	1	1	1	1	2	6	10	2	2	1	3	1	6,350
	\$8,000 to \$8,999.....	28	4	24	2	1	1	1	1	2	3	7	3	2	2	3	2	7,429
	\$9,000 to \$9,999.....	21	7	14	1	1	1	1	1	2	2	1	2	4	2	2	1	8,500
	\$10,000 to \$14,999.....	15	3	12	1	1	1	1	1	1	1	1	2	3	3	3	1	9,333
	\$15,000 to \$24,999.....	67	15	52	1	3	1	1	1	1	2	3	5	5	3	6	5	10,833
	\$25,000 or more.....	38	7	31	2	2	1	1	1	1	1	1	1	1	6	13	5	16,923
	Median income.....dol..	4,703	1,306	6,345	(NA)	705	1,875	2,813	3,650	4,750	5,636	6,500	7,357	8,750	9,000	11,111	12,500	25,000+ (X)
FEMALE	8,253	8,111	142	9	46	19	15	12	4	7	9	6	3	3	5	4	-	1,842
	14 years old and over.....																	
	Without nonfarm self-employment income.....	8,038	7,975	63	5	19	8	9	6	2	3	1	4	2	1	2	1	1,938
	With nonfarm self-employment income.....																	
	Loss.....	215	136	79	4	27	11	6	6	2	4	8	2	1	2	3	3	1,773
	\$1 to \$999.....	10	9	1	1	3	3	1	1	1	1	1	1	1	1	1	1	5,500
	\$1,000 to \$1,999.....	110	78	32	23	7	3	1	1	1	1	1	1	1	1	1	1	609
	\$2,000 to \$2,999.....	26	15	11	1	1	1	1	1	1	1	1	1	1	1	1	1	1,643
	\$3,000 to \$3,999.....	13	8	5	2	2	1	1	1	1	1	1	1	1	1	1	1	2,500
	\$4,000 to \$4,999.....	8	3	5	1	1	1	1	1	1	1	1	1	1	1	1	1	3,625
	\$5,000 to \$5,999.....	9	6	3	1	1	1	1	1	2	1	1	1	1	1	1	1	4,750
	\$6,000 to \$6,999.....	11	2	9	1	1	1	1	1	1	4	2	1	1	1	1	1	5,750
	\$7,000 to \$7,999.....	5	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6,625
	\$8,000 to \$8,999.....	3	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2,500
	\$9,000 to \$9,999.....	3	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	9,000
	\$10,000 to \$14,999.....	5	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	\$15,000 to \$24,999.....	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15,000
	\$25,000 or more.....	4	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1,500
	Median income.....dol..	886	756	1,591	1,000	587	1,357	1,667	3,500	4,500	1,000	6,000	6,500	8,500	3,000	12,500	6,500	(X)

- Represents zero. NA Not available. X Not applicable.

Table 51. Farm Self-Employment Income in 1969 of Persons by Sex

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent households)

CPS classification	Total	Census classification																
		Without farm self- employment income	With farm self-employment income															
			Total	Loss	\$1 to \$999	\$1,000 to \$1,999	\$2,000 to \$2,999	\$3,000 to \$3,999	\$4,000 to \$4,999	\$5,000 to \$5,999	\$6,000 to \$6,999	\$7,000 to \$7,999	\$8,000 to \$8,999	\$9,000 to \$9,999	\$10,000 to \$14,999	\$15,000 to \$24,999	\$25,000 or more	Median income (dol.)
MALE																		
14 years old and over....	7,210	6,910	300	33	84	44	31	14	15	16	12	8	13	6	14	3	2	1,673
Without farm self-employment income.....	6,855	6,788	67	12	34	6	7	2	2	2	-	-	1	-	1	-	-	632
With farm self-employment income.....	355	122	233	21	50	43	24	12	13	14	12	8	12	6	13	3	2	2,104
Loss.....	46	28	18	12	2	1	2	-	-	-	-	1	-	-	-	-	-	676
\$1 to \$999.....	104	48	56	5	34	10	3	-	-	-	-	-	-	1	2	1	-	1,666
\$1,000 to \$1,999.....	61	21	40	4	24	24	4	2	1	1	3	1	-	-	-	1	-	2,222
\$2,000 to \$2,999.....	25	7	18	2	4	1	9	1	-	-	2	1	-	2	-	-	-	3,333
\$3,000 to \$3,999.....	28	6	22	1	3	2	3	1	1	1	2	1	-	1	-	-	-	4,500
\$4,000 to \$4,999.....	19	1	18	1	-	3	1	1	8	2	1	1	-	1	1	-	-	5,389
\$5,000 to \$5,999.....	15	2	13	1	1	-	-	-	1	9	-	-	-	-	-	-	-	6,167
\$6,000 to \$6,999.....	10	3	7	-	-	-	-	-	3	-	3	-	-	-	1	-	-	7,750
\$7,000 to \$7,999.....	10	1	9	-	1	-	-	-	1	1	1	2	6	-	2	-	-	8,167
\$8,000 to \$8,999.....	3	-	10	-	1	-	-	-	-	-	-	-	-	-	-	-	-	8,500
\$9,000 to \$9,999.....	3	-	3	-	-	-	-	1	-	-	-	-	1	-	1	1	1	10,625
\$10,000 to \$14,999.....	15	4	11	-	-	1	2	1	-	-	-	-	-	-	4	1	1	9,250
\$15,000 to \$24,999.....	6	1	5	-	-	1	-	-	-	-	-	1	-	2	1	-	-	12,500
\$25,000 or more.....	3	-	3	-	-	-	-	-	-	-	1	-	-	-	1	-	1	(X)
Median income.....dol..	1,451	688	2,139	(NA)	676	1,438	2,333	3,500	4,688	5,333	7,000	7,500	8,333	4,000	9,500	15,000	15,000	(X)
FEMALE																		
14 years old and over....	8,253	8,236	17	5	5	1	3	1	-	1	1	-	-	-	-	-	-	700
Without farm self-employment income.....	8,216	8,203	13	4	3	-	3	1	-	1	1	-	-	-	-	-	-	833
With farm self-employment income.....	37	33	4	1	2	1	-	-	-	-	-	-	-	-	-	-	-	500
Loss.....	2	19	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$1 to \$999.....	21	19	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-	1,000
\$1,000 to \$1,999.....	4	2	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-
\$2,000 to \$2,999.....	5	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$3,000 to \$3,999.....	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$4,000 to \$4,999.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$5,000 to \$5,999.....	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$6,000 to \$6,999.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$7,000 to \$7,999.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$8,000 to \$8,999.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$9,000 to \$9,999.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$10,000 to \$14,999.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$15,000 to \$24,999.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$25,000 or more.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median income.....dol..	786	763	1,000	1,500	1,000	500	-	-	-	-	-	-	-	-	-	-	-	(X)

- Represents zero. NA Not available. X Not applicable.

Table 52. Social Security Income in 1969 of Persons by Sex

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total	Census classification								
		Without Social Security income	With Social Security income							
			Total	\$1 to \$999	\$1,000 to \$1,999	\$2,000 to \$2,999	\$3,000 to \$3,999	\$4,000 to \$4,999	\$5,000 or more	Median income (dol.)
MALE										
14 years and over.....	7,210	6,327	883	254	515	88	19	5	2	1,364
Without Social Security income...	6,328	6,226	102	47	45	3	5	1	1	1,089
With Social Security income.....	882	<u>101</u>	<u>781</u>	207	470	85	14	4	1	1,390
\$1 to \$999.....	236	40	196	<u>156</u>	32	4	4	-	-	628
\$1,000 to \$1,999.....	487	48	439	<u>38</u>	<u>377</u>	22	1	-	1	1,481
\$2,000 to \$2,999.....	130	7	123	12	<u>53</u>	<u>55</u>	2	1	-	1,934
\$3,000 to \$3,999.....	22	3	19	1	6	<u>4</u>	<u>6</u>	2	-	2,625
\$4,000 to \$4,999.....	4	2	2	-	1	-	<u>1</u>	-	-	2,000
\$5,000 and over.....	3	1	2	-	1	-	-	<u>1</u>	-	2,000
Median income.....dol..	1,421	1,219	1,443	663	1,538	2,300	3,000	3,500	1,500	(X)
FEMALE										
14 years and over.....	8,253	7,077	1,176	702	429	29	7	8	1	838
Without Social Security income...	7,156	6,888	268	200	58	4	3	3	-	670
With Social Security income.....	1,097	<u>189</u>	<u>908</u>	502	371	25	4	5	1	904
\$1 to \$999.....	609	108	501	<u>439</u>	55	6	-	1	-	571
\$1,000 to \$1,999.....	436	62	374	<u>57</u>	<u>305</u>	11	-	-	1	1,426
\$2,000 to \$2,999.....	29	9	20	4	<u>7</u>	<u>8</u>	-	1	-	1,857
\$3,000 to \$3,999.....	12	4	8	1	3	-	<u>3</u>	1	-	2,000
\$4,000 to \$4,999.....	8	3	5	1	1	-	<u>1</u>	<u>2</u>	-	3,500
\$5,000 or more.....	3	3	-	-	-	-	-	-	-	-
Median income.....dol..	901	875	906	572	1,428	1,591	3,667	3,500	1,500	(X)

- Represents zero. X Not applicable.

Table 53. Public Assistance Income in 1969 of Persons by Sex

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total	Census classification								
		Without public assistance income	With public assistance income							
			Total	\$1 to \$999	\$1,000 to \$1,999	\$2,000 to \$2,999	\$3,000 to \$3,999	\$4,000 to \$4,999	\$5,000 or more	Median income (dol.)
MALE										
14 years old and over.....	7,210	7,069	141	101	32	6	1	1	-	698
Without public assistance income.....	7,073	7,009	64	48	13	3	-	-	-	667
With public assistance income.....	137	60	77	53	19	3	1	1	-	726
\$1 to \$999.....	92	42	50	44	4	2	-	-	-	568
\$1,000 to \$1,999.....	37	15	22	6	14	1	-	1	-	1,357
\$2,000 to \$2,999.....	6	1	5	3	1	-	1	-	-	833
\$3,000 to \$3,999.....	1	1	-	-	-	-	-	-	-	-
\$4,000 to \$4,999.....	1	1	-	-	-	-	-	-	-	-
\$5,000 or more.....	-	-	-	-	-	-	-	-	-	-
Median income.....dol..	745	714	770	602	1,393	750	2,500	1,500	-	(X)
FEMALE										
14 years old and over.....	8,253	7,970	283	166	77	33	4	3	-	852
Without public assistance income.....	7,987	7,880	107	68	28	7	3	1	-	787
With public assistance income....	266	90	176	98	49	26	1	2	-	898
\$1 to \$999.....	146	52	94	81	11	2	-	-	-	580
\$1,000 to \$1,999.....	73	24	49	12	34	3	-	-	-	1,368
\$2,000 to \$2,999.....	30	8	22	3	4	15	-	-	-	2,267
\$3,000 to \$3,999.....	13	4	9	2	-	5	1	1	-	2,500
\$4,000 to \$4,999.....	3	2	1	-	-	1	-	-	-	2,500
\$5,000 or more.....	1	-	1	-	-	-	-	1	-	4,500
Median income.....dol..	911	865	936	605	1,397	2,533	3,500	4,000	-	(X)

- Represents zero. X Not applicable.

Table 54. All Other Income in 1969 of Persons by Sex

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Total	Census classification															Without all other income	Total
		With all other income																
		Total	Loss	\$1 to \$999	\$1,000 to \$1,999	\$2,000 to \$2,999	\$3,000 to \$3,999	\$4,000 to \$4,999	\$5,000 to \$5,999	\$6,000 to \$6,999	\$7,000 to \$7,999	\$8,000 to \$8,999	\$9,000 to \$9,999	\$10,000 to \$14,999	\$15,000 to \$24,999	\$25,000 or more			Median income (dol.)
MALE																		
14 years old and over....	7,210	2,084	1	1,316	342	148	95	46	41	20	19	6	8	25	8	9	791	
Without all other income.....	4,213	438	-	337	47	21	12	6	5	2	2	-	1	4	-	1	650	
With all other income.....	2,997	1,646	1	979	295	127	83	40	36	18	17	6	7	21	8	8	840	
Loss.....	20	8	1	5	-	1	-	-	-	-	-	-	-	-	-	-	600	
\$1 to \$999.....	2,083	982	-	841	71	22	18	8	8	3	3	2	1	3	1	1	584	
\$1,000 to \$1,999.....	417	300	-	87	177	14	5	2	4	1	2	-	1	4	2	1	1,356	
\$2,000 to \$2,999.....	199	143	-	22	26	70	13	4	3	2	1	-	-	-	2	-	2,336	
\$3,000 to \$3,999.....	79	60	-	5	8	9	31	3	1	1	-	-	-	1	-	1	3,258	
\$4,000 to \$4,999.....	54	47	-	7	5	5	8	19	3	2	-	-	-	-	-	-	3,813	
\$5,000 to \$5,999.....	36	27	-	4	2	1	3	2	11	-	1	-	-	1	-	-	5,136	
\$6,000 to \$6,999.....	32	27	-	3	1	3	2	2	3	7	2	3	-	-	-	1	5,833	
\$7,000 to \$7,999.....	21	18	-	2	2	1	1	-	1	2	1	-	2	-	-	-	7,000	
\$8,000 to \$8,999.....	4	2	-	-	-	-	-	-	-	-	1	-	-	-	-	-	6,000	
\$9,000 to \$9,999.....	11	9	-	1	-	-	-	-	-	-	-	1	-	3	4	-	9,833	
\$10,000 to \$14,999.....	25	15	-	1	2	1	2	-	1	-	-	-	-	7	1	-	10,357	
\$15,000 to \$24,999.....	11	4	-	-	-	-	-	-	-	-	-	-	-	1	2	1	20,000	
\$25,000 or more.....	5	4	-	1	-	-	-	-	-	-	-	-	-	-	-	3	25,000+	
Median income.....dol..	710	830	(NA)	576	1,427	2,379	3,177	4,158	4,667	7,000	6,750	6,333	7,750	9,375	2,500	7,000	(X)	
FEMALE																		
14 years old and over....	8,253	1,332	2	848	239	105	48	26	11	10	7	6	4	17	8	1	783	
Without all other income.....	6,648	480	1	357	68	31	6	5	4	1	-	-	1	4	2	-	669	
With all other income.....	1,605	852	1	491	171	74	42	21	7	9	7	6	3	13	6	1	866	
Loss.....	8	3	-	1	-	-	-	-	1	-	-	-	-	-	-	-	5,500	
\$1 to \$999.....	1,104	517	1	438	37	17	9	6	2	1	2	1	-	3	-	-	588	
\$1,000 to \$1,999.....	257	166	-	31	110	9	7	1	2	3	-	-	1	3	1	-	1,473	
\$2,000 to \$2,999.....	112	79	-	11	14	41	9	-	1	1	-	2	-	1	-	-	2,354	
\$3,000 to \$3,999.....	44	29	-	1	5	5	15	2	1	1	-	-	-	-	-	-	3,233	
\$4,000 to \$4,999.....	24	19	-	1	1	1	2	10	1	2	-	1	-	2	-	-	4,450	
\$5,000 to \$5,999.....	9	7	-	2	1	1	-	-	2	-	-	-	-	-	-	-	5,250	
\$6,000 to \$6,999.....	10	7	-	1	1	-	-	1	-	2	1	1	-	-	-	-	6,250	
\$7,000 to \$7,999.....	8	2	-	-	-	-	-	1	-	-	1	-	-	-	-	-	5,000	
\$8,000 to \$8,999.....	1	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	7,500	
\$9,000 to \$9,999.....	1	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-	12,500	
\$10,000 to \$14,999.....	14	10	-	4	-	-	-	-	-	-	-	-	-	3	-	-	2,000	
\$15,000 to \$24,999.....	10	8	-	1	1	-	-	-	-	-	1	1	-	-	5	-	17,000	
\$25,000 or more.....	3	3	-	1	-	1	-	-	-	-	-	-	-	-	-	1	2,500	
Median income.....dol..	720	818	500	558	1,441	2,268	2,556	4,150	2,500	3,500	6,500	3,000	12,500	2,500	19,000	25,000+	(X)	
- Represents zero. NA Not available. X Not applicable.																		

- Represents zero. NA Not available. X Not applicable.

Table 55. Indexes—Total Money Income in 1969 of Persons by Sex

(See text for explanation of indexes)

Total money income and sex	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Total money income and sex	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
BOTH SEXES, 14 YEARS AND OVER						MALE, 14 YEARS AND OVER—Continued					
L-fold index.....	45	44.0 to 45.7	(X)	(X)	(X)	\$6,000 to \$6,999.....	57	52.2 to 62.0	7.0	*0.0	-0.7 to 0.6
No income.....	25	24.1 to 26.9	22.1	1.4	0.9 to 1.9	\$7,000 to \$7,999.....	54	49.4 to 58.5	8.0	*-0.5	-1.1 to 0.2
Loss.....	78	55.6 to 100.0	0.2	-0.1	-0.2 to -0.1	\$8,000 to \$8,999.....	54	49.9 to 59.4	7.3	*-0.2	-0.8 to 0.4
\$1 to \$999.....	47	45.0 to 49.3	14.2	-1.1	-1.6 to -0.6	\$9,000 to \$9,999.....	54	49.0 to 59.5	5.9	*-0.2	-0.8 to 0.4
\$1,000 to \$1,999.....	51	48.0 to 53.5	9.7	*-0.2	-0.7 to 0.3	\$10,000 to \$14,999.....	38	35.0 to 40.3	16.3	*-0.6	-1.3 to 0.2
\$2,000 to \$2,999.....	55	51.6 to 58.2	7.0	*-0.2	-0.6 to 0.2	\$15,000 to \$24,999.....	37	33.1 to 41.5	6.2	*0.2	-0.3 to 0.7
\$3,000 to \$3,999.....	55	51.5 to 58.4	6.3	*0.1	-0.3 to 0.5	\$25,000 or more.....	38	32.0 to 46.2	1.8	0.7	0.4 to 1.0
\$4,000 to \$4,999.....	53	49.2 to 56.4	5.7	*-0.1	-0.5 to 0.3						
\$5,000 to \$5,999.....	55	51.1 to 58.5	5.4	*0.2	-0.2 to 0.6						
\$6,000 to \$6,999.....	55	51.4 to 59.1	5.1	*-0.1	-0.4 to 0.3	FEMALE, 14 YEARS AND OVER					
\$7,000 to \$7,999.....	54	50.0 to 57.9	4.8	*-0.2	-0.6 to 0.1	L-fold index.....	43	41.9 to 44.5	(X)	(X)	(X)
\$8,000 to \$8,999.....	53	49.2 to 57.7	4.0	*0.0	-0.3 to 0.4	No income.....	27	25.8 to 29.0	35.3	1.2	0.5 to 2.0
\$9,000 to \$9,999.....	53	48.1 to 57.6	3.1	*0.1	-0.2 to 0.4	Loss.....	85	46.7 to 100.0	0.1	*-0.1	-0.1 to 0.0
\$10,000 to \$14,999.....	35	32.7 to 37.6	8.3	*-0.2	-0.6 to 0.2	\$1 to \$999.....	49	46.4 to 51.6	18.7	-1.5	-2.3 to -0.7
\$15,000 to \$24,999.....	37	33.1 to 41.0	3.1	*0.2	-0.1 to 0.4	\$1,000 to \$1,999.....	49	45.5 to 52.4	11.7	*-0.5	-1.2 to 0.2
\$25,000 or more.....	40	33.8 to 47.8	0.9	0.3	0.1 to 0.4	\$2,000 to \$2,999.....	52	47.7 to 56.0	7.8	*0.1	-0.5 to 0.7
						\$3,000 to \$3,999.....	49	45.3 to 54.0	6.8	*0.0	-0.5 to 0.6
MALE, 14 YEARS AND OVER						\$4,000 to \$4,999.....	46	41.4 to 50.4	5.7	*0.1	-0.4 to 0.6
L-fold index.....	50	48.6 to 51.1	(X)	(X)	(X)	\$5,000 to \$5,999.....	47	42.2 to 52.2	4.8	*-0.1	-0.5 to 0.4
No income.....	34	30.1 to 37.3	7.1	1.5	1.0 to 2.1	\$6,000 to \$6,999.....	53	47.1 to 59.6	3.5	*-0.1	-0.5 to 0.4
Loss.....	75	50.1 to 100.0	0.3	-0.2	-0.3 to -0.1	\$7,000 to \$7,999.....	58	49.9 to 66.5	2.1	*0.0	-0.3 to 0.3
\$1 to \$999.....	46	42.1 to 50.0	9.1	*-0.7	-1.2 to 0.0	\$8,000 to \$8,999.....	55	45.6 to 66.3	1.2	*0.2	0.0 to 0.5
\$1,000 to \$1,999.....	54	50.0 to 59.4	7.4	*0.1	-0.5 to 0.8	\$9,000 to \$9,999.....	52	40.9 to 65.9	0.7	0.3	0.1 to 0.5
\$2,000 to \$2,999.....	60	54.4 to 65.2	6.2	*-0.5	-1.2 to 0.1	\$10,000 to \$14,999.....	39	31.9 to 48.7	1.3	*0.1	-0.1 to 0.4
\$3,000 to \$3,999.....	62	56.6 to 67.7	5.9	*0.1	-0.5 to 0.7	\$15,000 to \$24,999.....	51	35.3 to 73.9	0.3	*0.1	0.0 to 0.3
\$4,000 to \$4,999.....	61	55.7 to 67.1	5.7	*-0.3	-0.9 to 0.3	\$25,000 or more.....	78	45.9 to 100.0	0.1	*-0.1	-0.1 to 0.1
\$5,000 to \$5,999.....	62	56.5 to 67.4	6.0	*0.5	-0.2 to 1.1						

*Not different from zero at the 95-percent confidence level.

X Not applicable.

Source: Table 48.

Table 56. Indexes—Wage or Salary Income in 1969 of Persons by Sex

(See text for explanation of indexes)

Wage or salary income	Male					Female				
	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
TOTAL, 14 YEARS AND OVER										
L-fold index.....	39	38.0 to 40.5	(X)	(X)	(X)	33	31.5 to 34.2	(X)	(X)	(X)
No income.....	23	21.4 to 25.0	25.3	0.8	1.0 to 1.5	19	17.8 to 20.6	52.9	1.3	0.6 to 2.0
\$1 to \$999.....	44	40.2 to 48.4	8.7	-1.4	-2.0 to -0.7	40	37.2 to 43.2	13.6	-2.2	-2.9 to -1.5
\$1,000 to \$1,999.....	47	41.9 to 53.1	4.3	*0.2	-0.3 to 0.7	42	37.6 to 46.0	6.2	*-0.2	-0.7 to 0.2
\$2,000 to \$2,999.....	49	42.9 to 56.4	3.2	*0.0	-0.5 to 0.4	42	37.8 to 47.0	5.1	*0.1	-0.4 to 0.5
\$3,000 to \$3,999.....	50	44.6 to 56.9	3.9	*0.0	-0.5 to 0.5	39	35.1 to 43.7	5.4	*0.2	-0.2 to 0.7
\$4,000 to \$4,999.....	52	46.2 to 58.3	4.1	*0.0	-0.4 to 0.5	40	35.3 to 44.3	5.0	*0.1	-0.4 to 0.5
\$5,000 to \$5,999.....	56	50.5 to 61.8	4.9	*0.4	-0.2 to 1.0	39	34.4 to 43.9	4.4	*-0.1	-0.4 to 0.5
\$6,000 to \$6,999.....	48	44.0 to 53.5	6.2	*0.3	-0.3 to 0.9	44	38.3 to 49.9	3.2	*0.1	-0.2 to 0.5
\$7,000 to \$7,999.....	45	41.3 to 49.9	7.6	*-0.4	-1.0 to 0.2	50	42.1 to 59.2	1.7	*-0.1	-0.4 to 0.2
\$8,000 to \$8,999.....	47	42.5 to 51.8	6.6	*-0.2	-0.7 to 0.4	43	34.1 to 54.2	1.0	*0.2	0.0 to 0.4
\$9,000 to \$9,999.....	45	40.6 to 50.7	5.3	*-0.1	-0.6 to 0.4	37	27.2 to 51.4	0.6	*-0.2	0.0 to 0.3
\$10,000 to \$14,999.....	31	28.7 to 34.0	14.2	*-0.3	-0.9 to 0.4	29	21.5 to 38.1	1.0	*0.2	0.0 to 0.3
\$15,000 to \$24,999.....	30	26.3 to 34.7	4.9	*0.3	-0.1 to 0.7	60	34.0 to 100.0	0.1	*-0.1	0.0 to 0.1
\$25,000 or more.....	39	30.0 to 49.4	1.0	0.4	0.2 to 0.6	(S)	(S)	0.0	(S)	(S)

*Not different from zero at the 95-percent confidence level.

S Does not meet publication standards. X Not applicable.

Source: Table 49.

Table 57. Indexes—Nonfarm Self-Employment Income in 1969 of Persons by Sex

(See text for explanation of indexes)

Nonfarm self-employment income	Male					Female				
	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
TOTAL, 14 YEARS OLD AND OVER										
L-fold index.....	57	52.8 to 61.9	(X)	(X)	(X)	66	57.7 to 75.0	(X)	(X)	(X)
No income.....	39	35.6 to 43.4	92.0	*0.1	-0.5 to 0.7	57	49.4 to 65.6	97.4	0.9	0.5 to 1.2
Loss.....	76	57.0 to 100.0	0.5	*-0.1	-0.3 to 0.1	(S)	(S)	0.1	*0.0	-0.1 to 0.1
\$1 to \$999.....	78	66.4 to 92.1	1.6	-0.5	-0.8 to -0.2	71	58.8 to 86.0	1.3	-0.8	-1.0 to -0.5
\$1,000 to \$1,999.....	76	60.6 to 96.0	0.6	*0.1	-0.1 to 0.4	69	48.3 to 98.7	0.3	*-0.1	-0.2 to 0.1
\$2,000 to \$2,999.....	78	60.3 to 100.0	0.5	*0.0	-0.2 to 0.2	93	63.0 to 100.0	0.2	*0.0	-0.1 to 0.2
\$3,000 to \$3,999.....	73	55.5 to 96.0	0.5	*0.1	-0.1 to 0.3	60	34.0 to 100.0	0.1	*0.1	0.0 to 0.1
\$4,000 to \$4,999.....	75	56.0 to 100.0	0.4	*0.0	-0.2 to 0.2	69	36.0 to 100.0	0.1	*-0.1	-0.1 to 0.0
\$5,000 to \$5,999.....	75	59.0 to 96.5	0.5	*0.2	-0.1 to 0.4	75	42.5 to 100.0	0.1	*0.0	-0.1 to 0.1
\$6,000 to \$6,999.....	72	54.6 to 95.4	0.5	*0.0	-0.2 to 0.2	60	34.0 to 100.0	0.1	*0.0	-0.1 to 0.1
\$7,000 to \$7,999.....	75	54.8 to 100.0	0.4	*0.0	-0.2 to 0.2	(S)	(S)	0.1	*0.0	-0.1 to 0.1
\$8,000 to \$8,999.....	91	67.0 to 100.0	0.3	*0.0	-0.1 to 0.2	(S)	(S)	0.0	(S)	(S)
\$9,000 to \$9,999.....	81	54.3 to 100.0	0.2	*0.0	-0.1 to 0.2	(S)	(S)	0.0	(S)	(S)
\$10,000 to \$14,999.....	72	58.4 to 88.9	0.9	*-0.1	-0.4 to 0.2	80	40.0 to 100.0	0.1	*0.0	-0.1 to 0.1
\$15,000 to \$24,999.....	68	52.2 to 89.4	0.5	*0.1	-0.1 to 0.3	(S)	(S)	0.0	(S)	(S)
\$25,000 or more.....	48	35.0 to 65.6	0.5	*0.1	0.0 to 0.3	(S)	(S)	0.1	(S)	(S)

*Not different from zero at the 95-percent confidence level.

S Does not meet publication standards.

X Not applicable.

Source: Table 50.

Table 58. Indexes—Farm Self-Employment Income in 1969 of Persons by Sex

(See text for explanation of indexes)

Farm self-employment income	Male					Female				
	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
TOTAL, 14 YEARS AND OVER										
L-fold index.....	48	42.5 to 53.4	(X)	(X)	(X)	91	68.4 to 100.0	(X)	(X)	(X)
No income.....	30	26.1 to 35.0	95.1	0.8	0.4 to 1.2	85	63.7 to 100.0	99.6	0.2	0.1 to 0.4
Loss.....	70	53.5 to 91.6	0.6	*-0.2	-0.4 to 0.0	(S)	(S)	0.0	(S)	(S)
\$1 to \$999.....	65	53.9 to 77.6	1.4	*-0.3	-0.6 to 0.0	92	61.6 to 100.0	0.3	-0.2	-0.3 to -0.7
\$1,000 to \$1,999.....	57	44.1 to 73.2	0.9	*-0.2	-0.4 to 0.1	(S)	(S)	0.1	(S)	(S)
\$2,000 to \$2,999.....	68	49.3 to 94.1	0.4	*0.1	-0.1 to 0.3	(S)	(S)	0.1	(S)	(S)
\$3,000 to \$3,999.....	72	49.8 to 100.0	0.4	*-0.2	-0.4 to 0.0	(S)	(S)	0.0	(S)	(S)
\$4,000 to \$4,999.....	53	33.3 to 84.7	0.3	*-0.1	-0.2 to 0.1	(S)	(S)	0.0	(S)	(S)
\$5,000 to \$5,999.....	42	24.3 to 72.7	0.2	*0.0	-0.1 to 0.1	(S)	(S)	0.0	(S)	(S)
\$6,000 to \$6,999.....	73	44.4 to 100.0	0.1	*0.0	-0.1 to 0.1	(S)	(S)	0.0	(S)	(S)
\$7,000 to \$7,999.....	78	45.9 to 100.0	0.1	*0.0	-0.1 to 0.1	(S)	(S)	0.0	(S)	(S)
\$8,000 to \$8,999.....	48	26.4 to 86.8	0.1	*0.0	-0.1 to 0.1	(S)	(S)	0.0	(S)	(S)
\$9,000 to \$9,999.....	(S)	(S)	0.0	(S)	(S)	(S)	(S)	0.0	(S)	(S)
\$10,000 to \$14,999.....	73	47.1 to 100.0	0.2	*0.0	-0.1 to 0.1	(S)	(S)	0.0	(S)	(S)
\$15,000 to \$24,999.....	(S)	(S)	0.1	(S)	(S)	(S)	(S)	0.0	(S)	(S)
\$25,000 or more.....	(S)	(S)	0.0	(S)	(S)	(S)	(S)	0.0	(S)	(S)

*Not different from zero at the 95-percent confidence level.

S Does not meet publication standards.

X Not applicable.

Source: Table 51.

Table 59. Indexes—Social Security Income in 1969 of Persons by Sex

(See text for explanation of indexes)

Social Security income	Male					Female				
	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
TOTAL, 14 YEARS AND OVER										
L-fold index.....	24	21.9 to 26.8	(X)	(X)	(X)	30	27.5 to 32.3	(X)	(X)	(X)
No income.....	13	11.4 to 15.1	87.8	*0.0	-0.4 to 0.4	23	21.2 to 25.6	86.7	-1.0	-1.5 to -0.4
\$1 to \$999.....	38	32.4 to 43.7	3.3	*0.3	-0.1 to 0.6	36	32.6 to 39.5	7.4	1.1	0.6 to 1.6
\$1,000 to \$1,999.....	27	23.4 to 30.2	6.8	*0.4	-0.1 to 0.8	31	27.5 to 35.3	5.3	*-0.1	-0.5 to 0.3
\$2,000 to \$2,999.....	50	41.5 to 60.9	1.8	-0.6	-0.9 to -0.3	73	53.4 to 98.8	0.4	*0.0	-0.2 to 0.2
\$3,000 to \$3,999.....	71	49.0 to 100.0	0.3	*0.0	-0.2 to 0.1	68	39.6 to 100.0	0.2	*-0.1	-0.2 to 0.0
\$4,000 to \$4,999.....	(S)	(S)	0.1	(S)	(S)	75	42.5 to 100.0	0.1	*0.0	-0.1 to 0.1
\$5,000 or more.....	(S)	(S)	0.0	(S)	(S)	(S)	(S)	0.0	(S)	(S)

*Not different from zero at the 95-percent confidence level.
 S Does not meet publication standards. X Not applicable.

Source: Table 52.

Table 60. Indexes—Public Assistance Income in 1969 of Persons by Sex

(See text for explanation of indexes)

Public assistance income	Male					Female				
	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
TOTAL, 14 YEARS OLD AND OVER										
L-fold index.....	52	44.2 to 61.7	(X)	(X)	(X)	45	39.7 to 51.3	(X)	(X)	(X)
No income.....	45	38.0 to 54.4	98.1	*-0.1	-0.4 to 0.3	37	32.2 to 42.8	96.8	*-0.2	-0.6 to 0.1
\$1 to \$999.....	55	45.4 to 67.0	1.3	*0.1	-0.2 to 0.4	49	41.6 to 57.7	1.8	*0.2	-0.1 to 0.5
\$1,000 to \$1,999.....	59	43.7 to 81.5	0.5	*-0.1	-0.3 to 0.1	55	44.3 to 68.8	0.9	*0.1	-0.2 to 0.3
\$2,000 to \$2,999.....	(S)	(S)	0.1	*0.0	-0.1 to 0.1	53	37.2 to 74.4	0.4	*0.0	-0.1 to 0.2
\$3,000 to \$3,999.....	(S)	(S)	0.0	(S)	(S)	88	53.0 to 100.0	0.2	*-0.1	-0.2 to 0.0
\$4,000 to \$4,999.....	(S)	(S)	0.0	(S)	(S)	(S)	(S)	0.0	(S)	(S)
\$5,000 or more.....	(S)	(S)	0.0	(S)	(S)	(S)	(S)	0.0	(S)	(S)

*Not different from zero at the 95-percent confidence level.
 S Does not meet publication standards. X Not applicable.

Source: Table 53.

Table 61. Indexes—All Other Income in 1969 of Persons by Sex

(See text for explanation of indexes)

All other income	Male					Female				
	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS)	Net difference rate	95-percent confidence interval for net difference rate
TOTAL, 14 YEARS OLD AND OVER										
L-fold index.....	59	57.2 to 61.4	(X)	(X)	(X)	57	54.4 to 59.8	(X)	(X)	(X)
No income.....	53	51.3 to 55.7	58.4	12.7	11.5 to 13.8	51	48.4 to 53.7	80.6	3.3	2.5 to 4.2
Loss.....	91	57.4 to 100.0	0.3	-0.3	-0.4 to -0.1	(S)	(S)	0.1	*-0.1	-0.2 to 0.0
\$1 to \$999.....	65	62.4 to 67.9	28.9	-10.6	-11.8 to -9.5	62	59.0 to 66.0	13.4	-3.1	-3.9 to -2.3
\$1,000 to \$1,999.....	56	51.0 to 62.2	5.8	-1.0	-1.6 to -0.5	57	50.9 to 64.7	3.1	*-0.2	-0.6 to 0.2
\$2,000 to \$2,999.....	61	53.2 to 70.2	2.8	-0.7	-1.1 to -0.3	63	53.1 to 74.9	1.4	*-0.1	-0.4 to 0.2
\$3,000 to \$3,999.....	65	53.9 to 78.7	1.1	*0.2	-0.1 to 0.5	68	52.6 to 87.3	0.5	*0.1	-0.1 to 0.2
\$4,000 to \$4,999.....	62	48.5 to 80.4	0.8	*-0.1	-0.3 to 0.1	60	41.9 to 86.5	0.3	*0.0	-0.1 to 0.2
\$5,000 to \$5,999.....	72	54.9 to 94.0	0.5	*0.1	-0.1 to 0.3	80	48.8 to 100.0	0.1	*0.0	-0.1 to 0.1
\$6,000 to \$6,999.....	73	53.1 to 100.0	0.4	*-0.2	-0.3 to 0.0	80	48.8 to 100.0	0.1	*0.0	-0.1 to 0.1
\$7,000 to \$7,999.....	65	44.1 to 96.3	0.3	*0.0	-0.2 to 0.1	87	50.2 to 100.0	0.1	*0.0	-0.1 to 0.1
\$8,000 to \$8,999.....	(S)	(S)	0.1	*0.0	-0.1 to 0.1	(S)	(S)	0.0	(S)	(S)
\$9,000 to \$9,999.....	69	39.6 to 100.0	0.2	*0.0	-0.2 to 0.1	(S)	(S)	0.0	(S)	(S)
\$10,000 to \$14,999.....	72	51.9 to 100.0	0.4	*0.0	-0.2 to 0.2	81	54.3 to 100.0	0.2	*0.0	-0.1 to 0.2
\$15,000 to \$24,999.....	79	47.4 to 100.0	0.2	*0.0	-0.2 to 0.1	44	22.3 to 89.0	0.1	*0.0	-0.1 to 0.1
\$25,000 or more.....	57	28.6 to 100.0	0.1	*0.1	0.0 to 0.1	(S)	(S)	0.0	(S)	(S)

*Not different from zero at the 95-percent confidence level.
 S Does not meet publication standards. X Not applicable.

Source: Table 54.

Table 62. Poverty Status in 1969 of Families by Size and Sex and Race of Head

(Data shown are number of families in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Census classification													
	Families with income above poverty level							Families with income below poverty level						
	Total	2 persons	3 persons	4 persons	5 persons	6 persons	7 persons or more	Total	2 persons	3 persons	4 persons	5 persons	6 persons	7 persons or more
ALL FAMILIES														
Income Above Poverty Level														
Total families.....	4,937	1,667	1,051	1,005	626	311	277	214	90	25	32	30	15	22
2 person families.....	1,654	1,574	56	15	3	4	2	87	85	1	1	-	-	-
3 person families.....	1,033	79	911	36	5	2	-	30	5	23	2	-	-	-
4 person families.....	1,029	11	72	907	31	7	1	28	-	1	26	-	1	-
5 person families.....	632	1	11	42	561	11	6	34	-	-	3	30	1	-
6 person families.....	313	-	1	2	26	274	10	15	-	-	-	-	13	2
7 or more person families.....	276	2	-	3	-	13	258	20	-	-	-	-	-	20
Income Below Poverty Level														
Total families.....	160	72	30	22	14	6	16	307	121	41	30	38	22	55
2 person families.....	74	68	3	1	1	-	1	121	118	2	-	-	-	1
3 person families.....	30	3	26	1	-	-	-	44	2	38	2	1	-	1
4 person families.....	19	-	1	17	1	-	-	31	1	1	26	3	-	-
5 person families.....	15	1	-	3	11	-	-	36	-	-	2	32	2	-
6 person families.....	8	-	-	-	-	6	2	23	-	-	-	1	19	3
7 or more person families.....	14	-	-	-	1	-	13	52	-	-	-	1	1	50
FAMILIES WITH MALE HEAD														
Income Above Poverty Level														
Total families.....	4,578	1,475	957	961	611	304	270	168	74	19	26	19	11	19
2 person families.....	1,454	1,388	45	12	3	4	2	73	71	1	1	-	-	-
3 person families.....	943	74	832	30	5	2	-	22	3	17	2	-	-	-
4 person families.....	990	11	70	876	27	5	1	24	-	1	22	-	1	-
5 person families.....	615	1	9	38	551	11	5	20	-	-	1	19	-	-
6 person families.....	307	-	1	2	25	269	10	11	-	-	-	-	10	1
7 or more person families.....	269	1	-	3	-	13	252	18	-	-	-	-	-	18
Income Below Poverty Level														
Total families.....	125	55	17	21	13	6	13	201	89	20	15	23	12	42
2 person families.....	59	53	3	1	1	-	1	88	87	-	-	-	-	1
3 person families.....	15	1	13	1	-	-	-	24	2	19	2	-	-	1
4 person families.....	18	-	1	16	1	-	-	15	-	1	13	1	-	-
5 person families.....	14	1	-	3	10	-	-	21	-	-	-	20	1	-
6 person families.....	6	-	-	-	-	6	-	13	-	-	-	1	10	2
7 or more person families.....	13	-	-	-	1	-	12	40	-	-	-	1	1	38
FAMILIES WITH FEMALE HEAD														
Income Above Poverty Level														
Total families.....	359	192	94	44	15	7	7	46	16	6	6	11	4	3
2 person families.....	200	186	11	3	-	-	-	14	14	-	-	-	-	-
3 person families.....	90	5	79	6	-	-	-	8	2	6	-	-	-	-
4 person families.....	39	-	2	31	4	2	-	4	-	-	-	-	-	-
5 person families.....	17	-	2	4	10	-	1	14	-	-	2	11	1	-
6 person families.....	6	-	-	-	1	5	-	4	-	-	-	-	3	1
7 or more person families.....	7	1	-	-	-	-	6	2	-	-	-	-	-	2
Income Below Poverty Level														
Total families.....	35	17	13	1	1	-	3	106	32	21	15	15	10	13
2 person families.....	15	15	-	-	-	-	-	33	31	2	-	-	-	-
3 person families.....	15	2	13	-	-	-	-	20	-	19	-	1	-	-
4 person families.....	1	-	-	1	-	-	-	16	1	-	13	2	-	-
5 person families.....	1	-	-	-	1	-	-	15	-	-	2	12	1	-
6 person families.....	2	-	-	-	-	-	2	10	-	-	-	-	9	1
7 or more person families.....	1	-	-	-	-	-	1	12	-	-	-	-	-	12
WHITE FAMILIES														
Income Above Poverty Level														
Total families.....	4,611	1,563	982	956	595	276	239	184	81	21	28	27	12	15
2 person families.....	1,552	1,482	48	14	2	4	2	79	77	1	1	-	-	-
3 person families.....	961	69	853	34	3	2	-	25	4	19	2	-	-	-
4 person families.....	979	11	69	864	29	5	1	25	-	1	23	-	1	-
5 person families.....	603	1	11	39	536	11	5	29	-	-	2	27	-	-
6 person families.....	276	-	1	2	25	242	6	12	-	-	-	-	11	1
7 or more person families.....	240	-	-	3	-	12	225	14	-	-	-	-	-	14
Income Below Poverty Level														
Total families.....	132	63	24	18	11	5	11	227	96	32	24	30	15	30
2 person families.....	66	62	1	1	1	-	1	94	93	1	-	-	-	-
3 person families.....	24	1	22	1	-	-	-	35	2	30	2	-	-	1
4 person families.....	16	-	1	14	1	-	-	26	1	1	21	3	-	-
5 person families.....	11	-	-	2	9	-	-	28	-	-	1	26	1	-
6 person families.....	5	-	-	-	-	5	-	16	-	-	-	-	13	3
7 or more person families.....	10	-	-	-	-	-	10	28	-	-	-	1	1	26

- Represents zero.

Table 62. Poverty Status in 1969 of Families by Size and Sex and Race of Head—Continued

(Data shown are number of families in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Census classification													
	Families with income above poverty level							Families with income below poverty level						
	Total	2 persons	3 persons	4 persons	5 persons	6 persons	7 persons or more	Total	2 persons	3 persons	4 persons	5 persons	6 persons	7 persons or more
NEGRO FAMILIES														
Income Above Poverty Level														
Total families.....	291	97	62	44	23	29	36	30	9	4	4	3	3	7
2 person families.....	95	86	8	1	-	-	-	8	8	-	-	-	-	-
3 person families.....	62	9	51	1	1	-	-	5	1	4	-	-	-	-
4 person families.....	46	-	3	39	2	2	-	3	-	-	3	-	-	-
5 person families.....	24	-	-	3	20	-	1	5	-	-	1	3	1	-
6 person families.....	30	-	-	-	-	26	4	3	-	-	-	-	2	1
7 or more person families....	34	2	-	-	-	1	31	6	-	-	-	-	-	6
Income Below Poverty Level														
Total families.....	26	9	5	4	3	1	4	77	23	9	6	8	7	24
2 person families.....	7	6	1	-	-	-	-	25	23	1	-	-	-	1
3 person families.....	6	2	4	-	-	-	-	9	-	8	-	1	-	-
4 person families.....	3	-	-	3	-	-	-	5	-	-	5	-	-	-
5 person families.....	4	1	-	1	2	-	-	8	-	-	1	6	1	-
6 person families.....	3	-	-	-	-	1	2	7	-	-	-	1	6	-
7 or more person families....	3	-	-	-	1	-	2	23	-	-	-	-	-	23

- Represents zero.

Table 63. Size of Income Difference in 1969 Between the Poverty Level and Total Income for Families and Unrelated Individuals by Poverty Status and Sex of Head

(Data shown are number of families and unrelated individuals in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Census classification													
	Income above poverty level							Income below poverty level						
	Total	Less than \$250	\$250 to \$499	\$500 to \$999	\$1,000 to \$1,499	\$1,500 to \$1,999	\$2,000 or more	Total	Less than \$250	\$250 to \$499	\$500 to \$999	\$1,000 to \$1,499	\$1,500 to \$1,999	\$2,000 or more
ALL FAMILIES														
Income Above Poverty Level														
Total.....	4,937	64	62	113	154	147	4,397	214	28	21	52	34	25	54
Less than \$250.....	49	14	6	12	5	2	10	34	9	-	7	6	3	9
\$250 to \$499.....	62	9	14	8	6	3	22	12	1	2	3	3	1	2
\$500 to \$999.....	117	6	11	28	16	17	39	35	8	2	8	7	3	7
\$1,000 to \$1,499.....	142	9	5	15	43	18	52	28	3	4	8	3	6	4
\$1,500 to \$1,999.....	165	2	7	18	17	51	70	10	2	3	1	-	1	3
\$2,000 or more.....	4,402	24	19	32	67	56	4,204	95	5	10	25	15	11	29
Income Below Poverty Level														
Total.....	160	20	15	22	11	8	84	307	28	36	69	55	30	89
Less than \$250.....	29	6	-	5	3	4	11	38	16	8	7	4	-	3
\$250 to \$499.....	16	2	3	1	2	-	8	46	6	11	13	6	3	7
\$500 to \$999.....	49	6	5	9	2	1	26	69	4	7	32	14	7	5
\$1,000 to \$1,499.....	25	3	3	2	3	1	13	60	1	5	12	19	8	15
\$1,500 to \$1,999.....	11	2	1	2	-	1	5	29	1	3	2	7	5	11
\$2,000 or more.....	30	1	3	3	1	1	21	65	-	2	3	5	7	48
FAMILIES WITH MALE HEAD														
Income Above Poverty Level														
Total.....	4,578	48	50	93	138	120	4,129	168	24	21	40	28	18	37
Less than \$250.....	39	11	5	9	5	2	7	23	6	-	5	5	3	4
\$250 to \$499.....	50	7	10	7	6	2	18	7	1	2	2	2	-	-
\$500 to \$999.....	96	5	9	24	11	15	32	23	7	2	4	5	1	4
\$1,000 to \$1,499.....	121	8	4	9	41	14	45	22	3	4	6	2	5	2
\$1,500 to \$1,999.....	140	1	5	17	15	39	63	7	2	3	-	-	-	2
\$2,000 or more.....	4,132	16	17	27	60	48	3,964	86	5	10	23	14	9	25
Income Below Poverty Level														
Total.....	125	14	11	19	9	4	68	201	24	26	48	38	15	50
Less than \$250.....	18	3	-	4	3	1	7	30	13	6	6	4	-	1
\$250 to \$499.....	14	2	3	1	1	-	7	32	5	8	8	6	1	4
\$500 to \$999.....	40	4	3	7	2	1	23	48	4	4	22	9	4	5
\$1,000 to \$1,499.....	22	3	2	2	3	-	12	38	1	4	8	11	5	9
\$1,500 to \$1,999.....	7	2	-	2	-	1	2	14	1	2	1	3	2	5
\$2,000 or more.....	24	-	3	3	-	1	17	39	-	2	3	5	3	26

- Represents zero.

Table 63. Size of Income Difference in 1969 Between the Poverty Level and Total Income for Families and Unrelated Individuals by Poverty Status and Sex of Head—Continued

(Data shown are number of families and unrelated individuals in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Census classification													
	Income above poverty level							Income below poverty level						
	Total	Less than \$250	\$250 to \$499	\$500 to \$999	\$1,000 to \$1,499	\$1,500 to \$1,999	\$2,000 or more	Total	Less than \$250	\$250 to \$499	\$500 to \$999	\$1,000 to \$1,499	\$1,500 to \$1,999	\$2,000 or more
FAMILIES WITH FEMALE HEAD														
Income Above Poverty Level														
Total.....	359	16	12	20	16	27	268	46	4	-	12	6	7	17
Less than \$250.....	10	3	1	3	-	-	3	11	3	-	2	1	-	5
\$250 to \$499.....	12	2	4	1	-	1	4	5	-	-	1	1	1	2
\$500 to \$999.....	21	1	2	4	5	2	7	12	1	-	4	2	2	3
\$1,000 to \$1,499.....	21	1	1	6	2	4	7	6	-	-	2	1	1	2
\$1,500 to \$1,999.....	25	1	2	1	2	12	7	3	-	-	1	-	1	1
\$2,000 or more.....	270	8	2	5	7	8	240	9	-	-	2	1	2	4
Income Below Poverty Level														
Total.....	35	6	4	3	2	4	16	106	4	10	21	17	15	39
Less than \$250.....	11	3	-	1	-	3	4	8	3	2	1	-	-	2
\$250 to \$499.....	2	-	-	-	1	-	1	14	1	3	5	-	2	3
\$500 to \$999.....	9	2	2	2	-	-	3	21	-	3	10	5	3	-
\$1,000 to \$1,499.....	3	-	1	-	-	1	1	22	-	1	4	8	3	6
\$1,500 to \$1,999.....	4	-	1	-	-	-	3	15	-	1	1	4	3	6
\$2,000 or more.....	6	1	-	-	1	-	4	26	-	-	-	-	4	22
ALL UNRELATED INDIVIDUALS														
Income Above Poverty Level														
Total.....	744	29	37	70	55	59	494	119	22	20	31	19	27	-
Less than \$250.....	32	8	6	5	3	1	9	19	7	5	1	4	2	-
\$250 to \$499.....	46	8	17	6	6	2	7	20	4	3	6	2	5	-
\$500 to \$999.....	71	4	6	36	7	7	11	18	1	2	7	4	4	-
\$1,000 to \$1,499.....	61	3	4	9	23	12	10	16	2	2	4	3	5	-
\$1,500 to \$1,999.....	51	-	-	4	6	24	17	7	1	2	-	-	4	-
\$2,000 or more.....	483	6	4	10	10	13	440	39	7	6	13	6	7	-
Income Below Poverty Level														
Total.....	96	19	16	16	8	12	25	339	27	56	138	57	61	-
Less than \$250.....	27	8	7	4	-	4	4	54	15	15	12	5	7	-
\$250 to \$499.....	32	7	3	7	2	6	7	72	2	25	32	8	5	-
\$500 to \$999.....	17	2	3	2	3	2	5	128	7	15	76	11	19	-
\$1,000 to \$1,499.....	9	1	2	1	-	-	5	48	1	1	12	26	8	-
\$1,500 to \$1,999.....	11	1	1	2	3	-	4	34	2	-	6	7	19	-
\$2,000 or more.....	-	-	-	-	-	-	-	3	-	-	-	-	3	-
MALE UNRELATED INDIVIDUALS														
Income Above Poverty Level														
Total.....	252	3	8	21	23	16	181	27	4	2	7	6	8	-
Less than \$250.....	7	1	1	1	1	-	3	6	2	-	1	2	1	-
\$250 to \$499.....	5	-	4	1	-	-	-	3	1	-	-	-	2	-
\$500 to \$999.....	18	2	1	9	1	3	2	2	-	-	2	-	-	-
\$1,000 to \$1,499.....	23	-	-	3	13	2	5	2	-	1	-	1	-	-
\$1,500 to \$1,999.....	18	-	-	1	4	7	6	1	-	-	-	-	1	-
\$2,000 or more.....	181	-	2	6	4	4	165	13	1	1	4	3	4	-
Income Below Poverty Level														
Total.....	29	5	4	4	3	2	11	84	6	10	30	18	20	-
Less than \$250.....	7	3	2	-	-	1	1	15	3	4	2	2	4	-
\$250 to \$499.....	9	1	1	2	1	1	3	12	-	3	6	2	1	-
\$500 to \$999.....	5	-	-	-	1	-	4	31	2	2	17	4	6	-
\$1,000 to \$1,499.....	4	-	1	1	-	2	2	14	-	1	2	7	4	-
\$1,500 to \$1,999.....	4	1	-	1	1	-	1	12	1	-	3	3	5	-
\$2,000 or more.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FEMALE UNRELATED INDIVIDUALS														
Income Above Poverty Level														
Total.....	492	26	29	49	32	43	313	92	18	18	24	13	19	-
Less than \$250.....	25	7	5	4	2	1	6	13	5	5	-	2	1	-
\$250 to \$499.....	41	8	13	5	6	2	7	17	3	3	6	2	3	-
\$500 to \$999.....	53	2	5	27	6	4	9	16	1	2	5	4	4	-
\$1,000 to \$1,499.....	38	3	4	6	10	10	5	14	2	1	4	2	5	-
\$1,500 to \$1,999.....	33	-	-	3	2	17	11	6	1	2	-	-	3	-
\$2,000 or more.....	302	6	2	4	6	9	275	26	6	5	9	3	3	-
Income Below Poverty Level														
Total.....	67	14	12	12	5	10	14	255	21	46	108	39	41	-
Less than \$250.....	20	5	5	4	-	3	3	39	12	11	10	3	3	-
\$250 to \$499.....	23	6	2	5	1	5	4	60	2	22	26	6	4	-
\$500 to \$999.....	12	2	3	2	2	2	1	97	5	13	59	7	13	-
\$1,000 to \$1,499.....	5	1	1	-	-	-	3	34	1	-	10	19	4	-
\$1,500 to \$1,999.....	7	-	1	1	2	-	3	22	1	-	3	4	14	-
\$2,000 or more.....	-	-	-	-	-	-	-	3	-	-	-	-	3	-

- Represents zero.

Table 64. Income in 1969 of Families by Poverty Status and Sex of Head

(Data shown are number of families in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Census classification																			
	Income above poverty level								Income below poverty level											
	Total	Less than \$2,000	\$2,000 to \$2,499	\$2,500 to \$2,999	\$3,000 to \$3,499	\$3,500 to \$3,999	\$4,000 to \$4,999	\$5,000 or more	Total	No income	Loss	\$1 to \$999	\$1,000 to \$1,499	\$1,500 to \$1,999	\$2,000 to \$2,499	\$2,500 to \$2,999	\$3,000 to \$3,499	\$3,500 to \$3,999	\$4,000 to \$4,999	\$5,000 or more
ALL FAMILIES																				
Income Above Poverty Level																				
Total.....	4,937	-	20	69	82	90	210	4,466	214	12	1	31	39	28	43	10	15	14	11	10
Less than \$2,000.....	3	-	2	-	-	-	1	1	1	-	-	-	1	-	-	-	-	-	-	-
\$2,000 to \$2,499.....	20	-	3	4	4	2	1	6	11	1	-	4	2	1	3	-	-	-	-	-
\$2,500 to \$2,999.....	69	-	5	23	10	16	9	17	19	3	-	3	5	3	3	2	-	-	-	-
\$3,000 to \$3,499.....	73	-	12	23	23	23	7	14	22	-	-	5	7	3	7	-	-	-	-	-
\$3,500 to \$3,999.....	104	-	4	8	17	19	26	30	20	-	-	4	2	6	4	-	1	2	-	1
\$4,000 to \$4,999.....	216	-	2	9	11	19	84	91	29	4	-	2	6	4	3	4	2	4	-	-
\$5,000 or more.....	4,452	-	3	13	17	29	83	4,307	112	4	1	13	16	11	23	4	12	8	11	9
Income Below Poverty Level																				
Total.....	160	-	6	20	12	10	21	91	307	13	4	38	45	61	58	24	22	13	20	9
No income.....	5	-	-	1	-	-	1	3	3	2	-	1	-	-	-	-	-	-	-	-
Loss.....	6	-	-	1	1	2	1	4	6	-	2	1	1	1	4	3	-	-	1	-
\$1 to \$999.....	19	-	-	1	1	1	3	15	32	4	1	13	5	2	4	-	-	-	-	-
\$1,000 to \$1,499.....	18	-	2	1	1	1	3	10	45	2	1	8	17	10	5	3	-	-	-	-
\$1,500 to \$1,999.....	32	-	1	12	8	-	8	8	68	1	1	6	14	27	13	3	-	3	-	-
\$2,000 to \$2,499.....	37	-	3	3	2	2	7	20	53	3	-	4	3	14	22	2	4	-	2	1
\$2,500 to \$2,999.....	13	-	-	1	-	2	2	8	25	4	-	2	3	4	6	5	10	2	1	2
\$3,000 to \$3,499.....	10	-	-	1	-	1	1	8	24	1	-	2	1	2	5	4	3	1	1	-
\$3,500 to \$3,999.....	7	-	-	-	-	2	1	6	20	-	-	1	-	1	1	-	2	1	11	3
\$4,000 to \$4,999.....	7	-	-	-	-	-	1	6	20	-	-	1	-	1	1	-	2	1	4	-
\$5,000 or more.....	6	-	-	-	-	-	1	5	11	-	-	-	1	-	1	-	1	-	4	-
FAMILIES WITH MALE HEAD																				
Income Above Poverty Level																				
Total.....	4,578	-	17	49	68	76	163	4,205	168	7	1	19	37	23	34	8	12	7	10	10
Less than \$2,000.....	3	-	2	-	-	-	-	1	1	-	-	-	1	-	-	-	-	-	-	-
\$2,000 to \$2,499.....	16	-	3	2	4	2	6	5	9	1	-	3	2	1	2	2	-	-	-	-
\$2,500 to \$2,999.....	57	-	4	18	9	5	15	15	15	2	-	2	5	3	2	2	-	-	-	-
\$3,000 to \$3,499.....	56	-	1	8	18	13	10	10	15	-	-	2	6	2	5	-	-	-	-	-
\$3,500 to \$3,999.....	79	-	3	5	13	16	19	23	16	-	-	3	1	5	3	-	1	2	-	1
\$4,000 to \$4,999.....	185	-	2	9	10	17	66	81	18	1	-	1	6	3	1	3	2	1	-	-
\$5,000 or more.....	4,182	-	2	7	14	23	66	4,070	94	3	1	9	16	9	21	3	9	4	10	9
Income Below Poverty Level																				
Total.....	125	-	5	13	10	7	14	76	201	5	4	16	35	46	37	10	15	9	16	8
No income.....	3	-	-	1	-	-	-	2	2	1	-	1	1	-	-	-	-	-	-	-
Loss.....	6	-	-	1	1	2	1	4	6	-	2	1	5	1	3	1	-	-	1	-
\$1 to \$999.....	13	-	-	-	1	-	-	10	16	-	1	5	1	6	3	2	-	-	-	-
\$1,000 to \$1,499.....	17	-	2	1	1	1	2	10	27	1	-	3	12	6	3	1	-	-	-	-
\$1,500 to \$1,999.....	26	-	1	8	7	7	7	7	49	1	1	3	11	20	10	1	1	2	-	1
\$2,000 to \$2,499.....	23	-	2	2	1	1	4	15	34	2	-	2	3	12	3	1	1	-	-	1
\$2,500 to \$2,999.....	9	-	-	1	-	-	-	6	14	-	-	-	2	4	3	1	2	1	1	1
\$3,000 to \$3,499.....	9	-	-	-	-	-	1	7	11	-	-	-	-	1	1	1	6	1	1	1
\$3,500 to \$3,999.....	9	-	-	-	-	-	1	4	13	-	-	-	-	1	1	3	3	5	-	-
\$4,000 to \$4,999.....	7	-	-	-	-	-	1	6	19	-	-	1	-	1	1	-	2	1	10	3
\$5,000 or more.....	6	-	-	-	-	-	1	5	10	-	-	-	1	-	1	-	1	-	4	-

- Represents zero.

Table 64. Income in 1969 of Families by Poverty Status and Sex of Head—Continued

(Data shown are number of families in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Census classification																			
	Income above poverty level								Income below poverty level											
	Total	Less than \$2,000	\$2,000 to \$2,499	\$2,500 to \$2,999	\$3,000 to \$3,499	\$3,500 to \$3,999	\$4,000 to \$4,999	\$5,000 or more	Total	No income	Loss	\$1 to \$999	\$1,000 to \$1,499	\$1,500 to \$1,999	\$2,000 to \$2,499	\$2,500 to \$2,999	\$3,000 to \$3,499	\$3,500 to \$3,999	\$4,000 to \$4,999	\$5,000 or more
FAMILIES WITH FEMALE HEAD																				
Income Above Poverty Level																				
Total.....	359	-	3	20	14	14	47	261	46	5	-	12	2	5	9	2	3	7	1	-
Less than \$2,000.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$2,000 to \$2,499.....	4	-	-	2	-	-	1	1	2	-	-	1	-	-	1	-	-	-	-	-
\$2,500 to \$2,999.....	12	-	1	5	1	5	3	2	4	1	-	2	1	1	1	-	-	-	-	-
\$3,000 to \$3,499.....	17	-	-	-	-	4	-	4	7	-	-	3	1	1	2	-	-	-	-	-
\$3,500 to \$3,999.....	25	-	1	3	4	4	7	7	4	-	-	1	1	1	1	-	-	-	-	-
\$4,000 to \$4,999.....	31	-	-	-	-	2	18	10	11	3	-	1	1	1	2	1	3	3	-	-
\$5,000 or more.....	270	-	1	6	3	6	17	237	18	1	-	4	-	2	2	1	3	4	1	-
Income Below Poverty Level																				
Total.....	35	-	1	7	2	3	7	15	106	8	-	22	10	15	21	14	7	4	4	1
No income.....	2	-	-	-	-	-	1	1	1	1	-	-	-	-	-	-	-	-	-	-
Loss.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
\$1 to \$999.....	6	-	-	1	-	-	-	5	16	4	-	8	5	1	1	2	-	-	-	-
\$1,000 to \$1,499.....	1	-	-	-	-	-	1	-	18	1	-	-	3	4	2	1	-	-	-	-
\$1,500 to \$1,999.....	6	-	-	4	1	-	-	1	19	1	-	3	3	7	3	2	1	1	-	-
\$2,000 to \$2,499.....	14	-	1	2	1	2	3	5	19	1	-	2	1	2	10	3	1	1	1	-
\$2,500 to \$2,999.....	4	-	-	-	-	-	2	2	11	-	-	2	1	-	3	1	1	1	1	-
\$3,000 to \$3,499.....	1	-	-	-	-	-	-	1	13	1	-	2	1	-	2	1	4	1	1	-
\$3,500 to \$3,999.....	1	-	-	-	-	-	-	1	7	-	-	2	1	1	-	1	1	1	1	-
\$4,000 to \$4,999.....	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
\$5,000 or more.....	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-

- Represents zero.

Table 65. Poverty Status in 1969 of Persons by Family Status and Sex and Race of Head

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Census classification													
	Income above poverty level							Income below poverty level						
	Total	Persons in families					Unrelated indi- viduals 14 years and over	Total	Persons in families					Unrelated indi- viduals 14 years and over
		Total	Head	Wife	Related children under 18 years	Other family members			Total	Head	Wife	Related children under 18 years	Other family members	
ALL PERSONS														
Income Above Poverty Level														
Total.....	13,176	12,387	4,964	4,455	1,398	1,570	789	676	527	215	164	62	86	149
In families.....	12,392	12,347	4,937	4,448	1,398	1,564	45	557	527	215	164	62	86	30
Head.....	4,978	4,945	4,877	9	-	59	33	222	215	210	2	-	3	7
Wife of head.....	4,461	4,453	4	4,427	-	22	8	177	161	-	161	-	-	16
Related children under 18 years.....	1,438	1,438	-	1	1,379	58	-	71	69	1	-	62	6	2
Other family members.....	1,515	1,511	56	11	19	1,425	4	87	82	4	1	-	77	5
Unrelated individuals 14 years and over.....	784	40	27	7	-	6	744	119	-	-	-	-	-	119
Income Below Poverty Level														
Total.....	519	419	166	133	47	73	100	1,031	687	310	196	104	77	344
In families.....	410	406	160	130	47	69	4	688	683	307	196	104	76	5
Head.....	169	167	159	2	2	4	2	314	310	304	2	-	4	4
Wife of head.....	121	121	-	121	-	-	-	196	195	-	193	-	2	1
Related children under 18 years.....	55	55	-	-	44	11	-	117	117	-	1	103	13	-
Other family members.....	65	63	1	7	1	54	2	61	61	3	-	1	57	-
Unrelated individuals 14 years and over.....	109	13	6	3	-	4	96	343	4	3	-	-	1	339
PERSONS IN FAMILIES WITH MALE HEAD AND MALE UNRE- LATED INDIVIDUALS														
Income Above Poverty Level														
Total.....	11,851	11,569	4,595	4,436	1,296	1,242	282	480	428	168	162	44	54	52
In families.....	11,578	11,548	4,578	4,436	1,296	1,238	30	453	428	168	162	44	54	25
Head.....	4,600	4,580	4,558	2	-	20	20	171	168	166	-	-	2	3
Wife of head.....	4,461	4,453	4	4,427	-	22	8	177	161	-	161	-	-	16
Related children under 18 years.....	1,336	1,336	-	1	1,283	52	-	49	47	-	-	44	3	2
Other family members.....	1,181	1,179	16	6	13	1,144	2	56	52	2	1	-	49	4
Unrelated individuals 14 years and over.....	273	21	17	-	-	4	252	27	-	-	-	-	-	27
Income Below Poverty Level														
Total.....	368	338	126	126	37	49	30	575	488	202	193	53	40	87
In families.....	335	334	125	126	37	46	1	489	486	201	193	53	39	3
Head.....	130	129	125	-	2	2	1	203	201	201	-	-	-	2
Wife of head.....	121	121	-	121	-	-	-	196	195	-	193	-	2	1
Related children under 18 years.....	41	41	-	-	35	6	-	60	60	-	-	52	8	-
Other family members.....	43	43	-	5	-	38	-	30	30	-	-	1	29	-
Unrelated individuals 14 years and over.....	33	4	1	-	-	3	29	86	2	1	-	-	1	84
PERSONS IN FAMILIES WITH FEMALE HEADS AND FEMALE UNRELATED INDIVIDUALS														
Income Above Poverty Level														
Total.....	1,325	818	369	19	102	328	507	196	99	47	2	18	32	97
In families.....	814	799	359	12	102	326	15	104	99	47	2	18	32	5
Head.....	378	365	319	7	-	39	13	51	47	44	2	-	1	4
Wife of head.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Related children under 18 years.....	102	102	-	-	96	6	-	22	22	1	-	18	3	-
Other family members.....	334	332	40	5	6	281	2	31	30	2	-	-	28	1
Unrelated individuals 14 years and over.....	511	19	10	7	-	2	492	92	-	-	-	-	-	92
Income Below Poverty Level														
Total.....	151	81	40	7	10	24	70	456	199	108	3	51	37	257
In families.....	75	72	35	4	10	23	3	199	197	106	3	51	37	2
Head.....	39	38	34	2	-	2	1	111	109	103	2	-	4	2
Wife of head.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Related children under 18 years.....	14	14	-	-	9	5	-	57	57	-	1	51	5	-
Other family members.....	22	20	1	2	1	16	2	31	31	3	-	-	28	-
Unrelated individuals 14 years and over.....	76	9	5	3	-	1	67	257	2	2	-	-	-	255

- Represents zero.

Table 65. Poverty Status in 1969 of Persons by Family Status and Sex and Race of Head—Continued

(Data shown are number of persons in the March 1970 CPS matched in 1970 census 20-percent sample households)

CPS classification	Census classification													
	Income above poverty level							Income below poverty level						
	Total	Persons in families					Unrelated indi- viduals 14 years and over	Total	Persons in families					Unrelated indi- viduals 14 years and over
		Total	Head	Wife	Related children under 18 years	Other family members			Total	Head	Wife	Related children under 18 years	Other family members	
WHITE PERSONS														
Income Above Poverty Level														
Total.....	12,260	11,535	4,634	4,180	1,296	1,425	725	581	446	184	145	52	65	135
In families.....	11,537	11,501	4,611	4,174	1,296	1,420	36	473	446	184	145	52	65	27
Head.....	4,642	4,616	4,554	7	-	55	26	190	185	182	2	-	1	5
Wife of head.....	4,187	4,180	4	4,156	-	20	7	158	142	-	142	-	-	16
Related children under 18 years.....	1,329	1,329	-	1	1,281	47	-	57	55	1	-	52	2	2
Other family members.....	1,379	1,376	53	10	15	1,298	3	68	64	1	1	-	62	4
Unrelated individuals 14 years and over.....	723	34	23	6	-	5	689	108	-	-	-	-	-	108
Income Below Poverty Level														
Total.....	433	345	137	115	36	57	88	798	504	229	155	71	49	294
In families.....	339	335	132	114	36	53	4	504	501	227	155	71	48	3
Head.....	140	138	131	2	1	4	2	232	229	225	1	-	3	3
Wife of head.....	105	105	-	105	-	-	-	154	154	-	153	-	1	-
Related children under 18 years.....	45	45	-	-	35	10	-	80	80	-	1	71	8	-
Other family members.....	49	47	1	7	-	39	2	38	38	2	-	-	36	-
Unrelated individuals 14 years and over.....	94	10	5	1	-	4	84	294	3	2	-	-	1	291
NEGRO PERSONS														
Income Above Poverty Level														
Total.....	807	748	295	235	88	130	59	94	80	31	18	10	21	14
In families.....	751	742	291	234	88	129	9	83	80	31	18	10	21	3
Head.....	301	294	288	2	-	4	7	32	30	28	-	-	2	2
Wife of head.....	234	233	-	231	-	2	1	18	18	-	18	-	-	-
Related children under 18 years.....	96	96	-	-	85	11	-	14	14	-	-	10	4	-
Other family members.....	120	119	3	1	3	112	1	19	18	3	-	-	15	1
Unrelated individuals 14 years and over.....	56	6	4	1	-	1	50	11	-	-	-	-	-	11
Income Below Poverty Level														
Total.....	77	65	27	17	9	12	12	219	177	78	38	33	28	42
In families.....	62	62	26	15	9	12	-	178	176	77	38	33	28	2
Head.....	27	27	26	-	1	-	-	79	78	76	1	-	1	1
Wife of head.....	15	15	-	15	-	-	-	39	38	-	37	-	1	1
Related children under 18 years.....	8	8	-	-	7	1	-	37	37	-	-	32	5	-
Other family members.....	12	12	-	-	1	11	-	23	23	1	-	1	21	-
Unrelated individuals 14 years and over.....	15	3	1	2	-	-	12	41	1	1	-	-	-	40

- Represents zero.

Table 66. Indexes—Poverty Status in 1969 for Families and Unrelated Individuals by Sex and Race of Head

(See text for explanation of indexes)

Sex and race of family head and unrelated individuals	Index of inconsis- tency	95-percent confidence interval for index of inconsis- tency	Percent in class (CPS) ¹	Net differ- ence rate ¹	95-percent confidence interval for net difference rate	Sex and race of family head and unrelated individuals	Index of inconsis- tency	95-percent confidence interval for index of inconsis- tency	Percent in class (CPS) ¹	Net differ- ence rate ¹	95-percent confidence interval for net difference rate
All families.....	41	37.4 to 46.0	8.3	1.0	0.3 to 1.7	Unrelated individuals:					
Male head.....	45	40.3 to 50.9	6.4	0.9	0.2 to 1.5	Male.....	35	27.6 to 44.9	28.8	*-0.5	-4.4 to 3.3
Female head.....	38	31.0 to 46.4	25.8	*2.0	-1.3 to 5.3	Female.....	38	32.7 to 43.5	35.5	*2.8	0.0 to 5.6
White family head.....	44	39.6 to 49.6	7.0	1.0	0.3 to 1.7	White.....	37	32.5 to 42.3	32.0	*2.1	-0.3 to 4.4
Negro family head.....	35	27.9 to 45.5	24.3	*0.9	-2.6 to 4.5	Negro.....	41	29.3 to 59.9	46.0	*-0.9	-9.6 to 7.8

*Not different from zero at the 95-percent confidence level.

¹The percent in class and the net difference rate refer to the category "Income Below Poverty Level."

Source: Tables 62 and 65.

Table 67. Indexes—Poverty Status in 1969 for Families Reporting the Same Family Size in CPS and Census by Sex and Race of Head

(See text for explanation of indexes. See table 62 for family size categories)

Sex and race of family head	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS) ¹	Net difference rate ¹	95-percent confidence interval for net difference rate
All families.....	41	36.8 to 45.7	8.3	1.1	0.4 to 1.8
Male head.....	45	39.6 to 50.6	6.4	1.0	0.3 to 1.7
Female head.....	37	30.0 to 46.2	26.2	*1.9	-1.7 to 5.4
White family head.....	45	39.7 to 50.1	7.0	1.0	0.3 to 1.8
Negro family head.....	32	24.1 to 42.0	24.2	*2.2	-1.5 to 5.8

*Not different from zero at the 95-percent confidence level.

¹The percent in class and the net difference rate refer to the category "Income Below Poverty Level."

Source: Table 62.

Table 68. Indexes—Poverty Status in 1969 for Families by the Difference Between Total Family Income and the Poverty Level

(See text for explanation of indexes)

Difference between total income and the poverty level	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS) ¹	Net difference rate ¹	95-percent confidence interval for net difference rate
Less than \$250.....	67	47.3 to 100.0	48.9	*6.7	-11.1 to 24.4
\$250 to \$499.....	34	19.6 to 74.6	46.7	*-3.3	-19.7 to 13.0
\$500 to \$999.....	44	30.5 to 68.4	53.3	*-1.3	-12.3 to 9.7
\$1,000 to \$1,499.....	20	9.1 to 44.7	32.4	*0.0	-7.8 to 7.8
\$1,500 to \$1,999.....	19	5.0 to 69.4	10.3	*0.0	-6.0 to 6.0
\$2,000 or more.....	35	26.3 to 46.2	1.6	*0.2	-0.2 to 0.5

*Not different from zero at the 95-percent confidence level.

¹The percent in class and the net difference rate refers to the category "Income Below Poverty Level."

Source: Table 63.

Table 69. Indexes—Poverty Status in 1969 for Families Reporting the Same Income in CPS and Census by Sex of Head

(See text for explanation of indexes. See table 64 for income categories. Same

Income means that family income in table 64 appears in the same income interval in both the CPS and the Census)

Sex of family head	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS) ¹	Net difference rate ¹	95-percent confidence interval for net difference rate
All families.....	20	13.8 to 29.2	1.5	*0.1	-0.2 to 0.3
Male head.....	26	17.2 to 38.0	1.1	*0.1	-0.1 to 0.4
Female head.....	8	2.5 to 22.6	7.6	*-0.3	-1.7 to 1.0

*Not different from zero at the 95-percent confidence level.

¹The percent in class and the net difference rate refer to the category "Income Below Poverty Level."

Source: Table 64.

Table 70. Indexes—Poverty Status in 1969 for Persons Reporting the Same Family Status in CPS and Census by Sex of Family Head and Race

(See text for explanation of indexes. See table 65 for family status categories)

Family status, sex of family head, and race	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CPS) ¹	Net difference rate ¹	95-percent confidence interval for net difference rate
Total persons.....	40	37.4 to 42.2	9.8	1.0	0.6 to 1.5
In families with a male head and male unrelated individuals.....	45	41.8 to 48.1	7.0	0.8	0.3 to 1.2
In families with a female head and female unrelated individuals.....	38	33.8 to 41.7	29.1	2.9	1.1 to 4.7
White persons.....	41	38.9 to 44.3	8.5	1.1	0.7 to 1.6
Negro persons.....	36	31.2 to 42.1	24.6	*1.0	-1.2 to 3.2

*Not different from zero at the 95-percent confidence level.

¹The percent in class and the net difference rate refer to the category "Income Below Poverty Level."

Source: Table 65.

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Appendix A. 1970 CPS-Census Match Study Methods and Design

The data for this study result from the comparison of characteristics for identical persons as recorded in the 1970 Census of Population and in the March 1970 Current Population Survey (CPS). The March 1970 CPS was used as the source of CPS data since many items (e.g., work experience, income) were available only from the March CPS file. To accomplish the match, the following operations were undertaken. A 1970 census geographic identification (i.e., enumeration district or ED) was assigned to each housing unit in the March 1970 CPS, and the appropriate census address register was searched for the unit. If an address match was made to a census unit listed as being enumerated on a 100-percent (short form) questionnaire, the CPS unit was considered matched and was dropped from the scope of this study. This was done since most of the items examined in this study were collected only for persons in the 15- or 5-percent samples of the Population Census. If the CPS unit's address was matched to the address of a census household enumerated on a sample questionnaire, the census questionnaire for that unit was obtained and a name match was performed. For any unit not matched in either the address register search or

the questionnaire search, attempts were made through clerical review of the assignment of census ED and/or through field reconciliation to obtain corrected geographic or other information for the unit.

For each CPS unit matched to a census 15- or 5-percent questionnaire, selected CPS and census identification information on the household and persons therein was transcribed to a specially designed, machine-readable control sheet. All transcription work was subjected to a visual review. The information on the control sheets was then transferred to computer tape. This control tape was first matched against the March 1970 CPS data file, and the records for persons included in the study were obtained from the CPS file. Then, the control tape was matched with the edited detail file of the census sample, and the records for the appropriate persons were obtained. The CPS and census records for each person were merged and the resultant data tape was used in the creation of the analytic tabulations shown in this report.

Appendix B. Computation of Response Error Measures and Their 95-Percent Confidence Intervals

(This section presents, with examples, the computational forms of the response error measures used in this report)

DISPLAY OF CROSS-TABULATED DATA

General procedure						Example of procedure							
Display of cross-tabulated data for characteristic with L categories ($L \geq 2$). The general term x_{ij} represents the number of unweighted sample elements in the i th category in the CPS and j th category in the census.						Relationship to household head (artificial data)							
CPS ($i=1, \dots, L$)		Census ($j=1, \dots, L$)				CPS	Census						
		Total	Category 1	Category 2	...		Category j	...	Total persons	Head of household	Wife of head	Child	Other relative
Total	$n_{..}$	$x_{..1}$	$x_{..2}$	...	$x_{..j}$	...	Total persons	8,000	2,400	2,000	3,100	450	50
Category 1	$x_{1.}$	x_{11}	x_{12}	...	x_{1j}	...	Head of household	2,300	<u>2,250</u>	40	10	-	-
Category 2	$x_{2.}$	x_{21}	x_{22}	...	x_{2j}	...	Wife of head	2,100	60	<u>1,900</u>	120	20	-
.	.	.	.	...	.	...	Child	3,000	40	20	<u>2,900</u>	30	10
.	.	.	.	...	.	...	Other relative	500	40	30	30	<u>400</u>	-
Category i	$x_{i.}$	x_{i1}	x_{i2}	...	x_{ij}	...	Nonrelative	100	10	10	40	-	<u>40</u>

COMPUTING NET DIFFERENCE RATE

Net difference rate for category i:

$$\bar{e}_i = \frac{X_{.i} - X_{1.}}{n_{..}} \times (100), \quad (i=1, \dots, L)$$

Net difference rate, head of household:

$$\bar{e}_1 = \left(\frac{2,400 - 2,300}{8,000} \right) = \left(\frac{100}{8,000} \right) \times (100) = 1.2$$

COMPUTING NET SHIFT RATE

Net shift rate for category i:

$$\bar{e}_i = \frac{\left(\frac{X_{.i} - X_{1.}}{n_{..}} \right)}{\left(\frac{X_{1.}}{n_{..}} \right)} \times (100) \quad (i=1, \dots, L)$$

Net shift rate, head of household:

$$\bar{e}_1 = \frac{\left(\frac{2,400 - 2,300}{8,000} \right)}{\left(\frac{2,300}{8,000} \right)} \times (100) = \frac{1.25}{\left(\frac{2,300}{8,000} \right)} = 4.4$$

COMPUTING INDEX OF INCONSISTENCY

Index of inconsistency for category i:

$$\hat{I} = \frac{(X_{.i} + X_{1.} - 2X_{ii})}{\frac{1}{n_{..}} [X_{.i}(n_{..} - X_{1.}) + X_{1.}(n_{..} - X_{.i})]} \times (100) \quad (i=1, \dots, L)$$

Index of inconsistency, head of household:

$$\begin{aligned} \hat{I} &= \frac{(2,400 + 2,300 - 2(2,250))}{\frac{1}{8,000} [(2,400)(8,000 - 2,300) + (2,300)(8,000 - 2,400)]} \times (100) \\ &= \frac{(200)(8,000)}{(2,400)(5,700) + (2,300)(5,600)} \times (100) \\ &= \left(\frac{1,600,000}{26,560,000} \right) \times (100) = 6.0 \end{aligned}$$

NOTE: X_{ii} is on diagonal term.

L-fold index of inconsistency:

$$\hat{I}_L = \frac{\left(\frac{L}{n_{..} - \sum_i X_{ii}} \right)}{\left(\frac{1}{n_{..} - \sum_i X_{ii}} \right)} \times (100)$$

$$\begin{aligned} \hat{I}_L &= \frac{\left(\frac{L}{n_{..} - \sum_i X_{ii}} \right)}{\left(\frac{1}{n_{..} - \sum_i X_{ii}} \right)} \times (100) \\ &= \left(\frac{8,000 - 7,490}{8,000 - 2406.25} \right) \times (100) = \left(\frac{510}{5,593.75} \right) \times (100) = 9.1 \end{aligned}$$

L-fold index of inconsistency, relationship to head:

$$\hat{I}_L = \frac{(8,000) - (2,250 + 1,900 + 2,900 + 400 + 40)}{(8,000) - \frac{1}{8,000} [(2,400)(2,300) + (2,000)(2,100) + (3,100)(3,000) + (450)(500) + (50)(100)]} \times (100)$$

COMPUTING 95-PERCENT CONFIDENCE INTERVALS

95-percent confidence interval of net difference rate for category i : ($i=1, \dots, L$)

95-percent confidence limits are

$$\frac{(X_{.i} - X_{i.}) + 2\sqrt{\frac{X_{.i} + X_{i.} - 2X_{ii}}{n_{..}} + 1}}{n_{..}} \times (100)$$

Exceptions

- If $(X_{.i} - X_{i.}) = 0$, then widen the high 95-percent confidence limit by adding $\frac{2}{n_{..}} \times (100)$
- If $(X_{.i} - X_{i.}) = 0$, then widen the low 95-percent confidence limit by subtracting $\frac{2}{n_{..}} \times (100)$
- If both a and b above, the 95-percent confidence limits are estimated as $\frac{-4}{n_{..}} \times (100)$ to $\frac{+4}{n_{..}} \times (100)$

95-percent confidence interval of index of inconsistency for category i : ($i=1, \dots, L$)

$$1. \text{ If } \frac{X_{.i} + X_{i.} - 2X_{ii}}{n_{..}} \leq .10.$$

95-percent confidence limits are

$$\frac{(X_{.i} + X_{i.} - 2X_{ii} + 2) + 2\sqrt{\frac{X_{.i} + X_{i.} - 2X_{ii}}{n_{..}} + 1}}{n_{..}} \times (100)$$

$$2. \text{ If } \frac{X_{.i} + X_{i.} - 2X_{ii}}{n_{..}} > .10,$$

95-percent confidence limits are

$$\frac{(X_{.i} + X_{i.} - 2X_{ii} + 2) + 2\sqrt{\frac{1}{n_{..}}(X_{.i} + X_{i.} - 2X_{ii})(n_{..} - X_{.i} - X_{i.} + 2X_{ii})}}{n_{..}} \times (100)$$

95-percent confidence interval of net difference rate for head of household:

1. Low 95-percent confidence limit is

$$\frac{(2,400 - 2,300) - 2\sqrt{\frac{2,400 + 2,300 - 2(2,250) + 1}{8,000}}}{8,000} \times (100)$$

$$= \frac{(100) - 2\sqrt{201}}{8,000} \times (100) = \frac{71.7}{8,000} \times (100) = 0.9$$

2. High 95-percent confidence limit is

$$\frac{(2,400 - 2,300) + 2\sqrt{\frac{2,400 + 2,300 - 2(2,250) + 1}{8,000}}}{8,000} \times (100)$$

$$= \frac{100 + 2\sqrt{201}}{8,000} = \frac{128.3}{8,000} \times (100) = 1.6$$

95-percent confidence interval of index of inconsistency for head of household:

$$\frac{2,400 + 2,300 - 2(2,250)}{8,000} = .025$$

Low 95-percent confidence limit is

$$\frac{2,400 + 2,300 - 2(2,250) + 2 - 2\sqrt{\frac{2,400 + 2,300 - 2(2,250) + 1}{8,000}}}{8,000} \times (100)$$

$$= \frac{(202 - 2\sqrt{201}) \times (100)}{(2,400)(.7125) + (2,300)(.7)} = \frac{173.7}{3,320} \times (100) = 5.2$$

High 95-percent confidence limit is

$$\frac{(202 + 2\sqrt{201}) \times (100)}{(2,400)(.7125) + (2,300)(.7)} = \frac{230.3}{3,320} \times (100) = 6.9$$

COMPUTING 95-PERCENT CONFIDENCE INTERVALS—Continued

95-percent confidence interval for L-fold index of inconsistency

$$1. \text{ If } \frac{\left(n_{..} - \sum_{i=1}^L X_{ii} \right)}{n_{..}} \leq .10$$

95-percent confidence limits are

$$\left(n_{..} - \sum_{i=1}^L X_{ii} + 2 \right) \pm 2 \sqrt{\frac{n_{..} - \sum_{i=1}^L X_{ii} + 1}{n_{..} - \sum_{i=1}^L X_{ii} + 1}} \times (100)$$

$$2. \text{ If } \frac{\left(n_{..} - \sum_{i=1}^L X_{ii} \right)}{n_{..}} > .10$$

95-percent confidence limits are

$$\left(n_{..} - \sum_{i=1}^L X_{ii} + 2 \right) \pm 2 \sqrt{\frac{1}{n_{..}} \left(n_{..} - \sum_{i=1}^L X_{ii} \right) \left(\sum_{i=1}^L X_{ii} \right)} \times (100)$$

95-percent confidence interval of L-fold index of inconsistency for relationship to head of household:

$$\frac{8,000 - (2,250 + 1,900 + 2,900 + 400 + 40)}{8,000} = \frac{510}{8,000} = .064$$

Low 95-percent confidence limit is

$$\frac{(510 + 2) - 2 \sqrt{\frac{510 + 1}{8,000 - 1}}}{8,000} \times (100) = \frac{(512 - 2(22.6))}{(8,000 - 2406.25)} \times (100) = \frac{466.8}{5593.75} \times (100) = 8.3$$

High 95-percent confidence limit is

$$\frac{512 + 2(22.6)}{(8,000 - 2406.25)} \times (100) = \frac{557.2}{5593.75} \times (100) = 10.0$$

Appendix C. Standard Errors for Selected Characteristics

This appendix presents tables of standard errors to be used in deriving the standard errors of the percentages shown in tables C, E, G, and K, and the medians discussed in section 9 of this report.

The reliability of an estimated percentage, computed by using sample data for both numerator and denominator, depends upon both the size of the percentage and the number of matched sample persons upon which the percentage is based. Estimated percentages are relatively more reliable than the corresponding estimates of the numerators of the percentages, particularly if the percentages are 50 percent or more. For percentages and/or sample sizes not shown in tables C2, C3, and C4, linear interpolation will provide reasonably accurate estimates of the standard error.

Illustration of the Use of Tables of Standard Errors of Percentages

Table G of this report indicates that of the 810 matched sample persons who reported in the CPS that they completed 2 years of high school; 48.6 percent reported in the same category in the census. Table C2 shows that the standard error of 48.6 percent on a base of 810 is approximately 2.3 percentage points. Consequently, chances are about 68 out of 100 that the estimated 48.6 percent would be within 2.3 percentage points of the average result of all possible repetitions of this study, and chances are about 95 out of 100 that the estimate would be within 4.6 percentage points of this figure, i.e., the 95-percent confidence interval would range from 44.0 to 53.2 percent.

The reliability of an estimated median derived from this study depends on the distribution from which it was derived and on the number of matched sample persons in the distribution. An approximate method for measuring the reliability of an estimated median is to determine an interval about the estimated median such that there is a stated degree of confidence that the median derived from a complete enumeration of the population lies within the interval. As the first step in estimating the confidence limits about the median, determine the standard error for a 50-percent characteristic using the number of

matched persons on which the median is based. From the distribution on which the median is based, cumulate the frequencies (as percentages) until the total percent first exceeds 50 percent minus the standard error, and by linear interpolation obtain a value corresponding to 50 percent minus the standard error. In the same manner, determine the upper limit of the confidence interval by adding the standard error to 50 percent and finding its corresponding value by linear interpolation. The chances are about 68 out of 100 that the median derived from a complete enumeration of the population would be within this interval. The chances are about 95 out of 100 that this median would lie within the interval obtained by doubling the standard error before adding to and subtracting from 50 percent.

Illustration of the Computation of the Standard Error of a Median

The median census income for all matched persons 14 years and older in this study was \$4,413 (table 48). The total number of sample persons on which the median is based is 11,826.

1. From table C4, the standard error of a 50-percent income characteristic based on a sample of 11,826 is approximately 0.6 of a percentage point.

2. Adding and subtracting twice the standard error from 50 percent yields the percentage limits for a 95-percent confidence interval of about 48.8 to 51.2

3. Since 47.0 percent of these persons had incomes below \$4,000 and about 7.4 percent had incomes between \$4,000 and \$4,999, the dollar value of the lower limit may be found by linear interpolation to be

$$\frac{48.8 - 47.0}{7.4} \times (\$1,000) + \$4,000 = \$4,243$$

Similarly the dollar value on the upper limit may be found by linear interpolation to be

$$\frac{51.2 - 47.0}{7.4} \times (\$1,000) + \$4,000 = \$4,567$$

The 95-percent confidence interval for this median is, therefore, \$4,243 to \$4,567.

Table C1. Standard Errors of Estimated Percentages, Relationship to Household Head and Marital Status

(68 chances out of 100)

Estimated percentage	Base of estimated percentage							
	80	200	400	800	2,000	4,000	8,000	20,000
1 or 99.....	1.6	1.0	0.7	0.5	0.3	0.2	0.2	0.1
2 or 98.....	2.2	1.4	1.0	0.7	0.4	0.3	0.2	0.1
5 or 95.....	3.5	2.2	1.6	1.1	0.7	0.5	0.3	0.2
10 or 90.....	4.8	3.0	2.1	1.5	1.0	0.7	0.5	0.3
15 or 85.....	5.7	3.6	2.6	1.8	1.1	0.8	0.6	0.4
20 or 80.....	6.4	4.1	2.9	2.0	1.3	0.9	0.6	0.4
25 or 75.....	6.9	4.4	3.1	2.2	1.4	1.0	0.7	0.4
35 or 65.....	7.6	4.8	3.4	2.4	1.5	1.1	0.8	0.5
50.....	8.0	5.1	3.6	2.5	1.6	1.1	0.8	0.5

Table C2. Standard Errors of Estimated Percentages, Year of School Completed

(68 chances out of 100)

Estimated percentage	Base of estimated percentage							
	80	200	400	800	2,000	4,000	8,000	20,000
2 or 98.....	2.0	1.3	0.9	0.6	0.4	0.3	0.2	0.1
5 or 95.....	3.1	2.0	1.4	1.0	0.6	0.4	0.3	0.2
10 or 90.....	4.3	2.8	1.9	1.4	0.9	0.6	0.4	0.3
25 or 75.....	6.2	4.0	2.8	2.0	1.2	0.9	0.6	0.4
50.....	7.2	4.5	3.2	2.3	1.4	1.0	0.7	0.5

Table C3. Standard Errors of Estimated Percentages, Work Experience in 1969

(68 chances out of 100)

Estimated percentage	Base of estimated percentage.							
	80	200	400	800	2,000	4,000	8,000	20,000
2 or 98.....	1.6	1.0	0.7	0.5	0.3	0.2	0.2	0.1
5 or 95.....	2.4	1.5	1.1	0.8	0.4	0.3	0.2	0.2
10 or 90.....	3.3	2.1	1.5	1.1	0.7	0.5	0.3	0.2
15 or 85.....	3.9	2.5	1.8	1.3	0.8	0.6	0.4	0.3
25 or 75.....	4.8	3.1	2.1	1.5	1.0	0.7	0.5	0.3
35 or 65.....	5.3	3.3	2.4	1.7	1.1	0.7	0.5	0.3
50.....	5.5	3.5	2.5	1.7	1.1	0.8	0.6	0.4

Table C4. Standard Errors of Estimated Percentages, Income in 1969

(68 chances out of 100)

Estimated percentage	Base of estimated percentage							
	80	200	400	800	2,000	4,000	8,000	20,000
2 or 98.....	1.7	1.1	0.8	0.5	0.3	0.2	0.2	0.1
5 or 95.....	2.7	1.7	1.2	0.9	0.5	0.4	0.3	0.2
10 or 90.....	3.7	2.3	1.7	1.2	0.7	0.5	0.4	0.2
25 or 75.....	5.4	3.4	2.4	1.7	1.1	0.8	0.5	0.3
50.....	6.2	3.9	2.8	2.0	1.2	0.9	0.6	0.4

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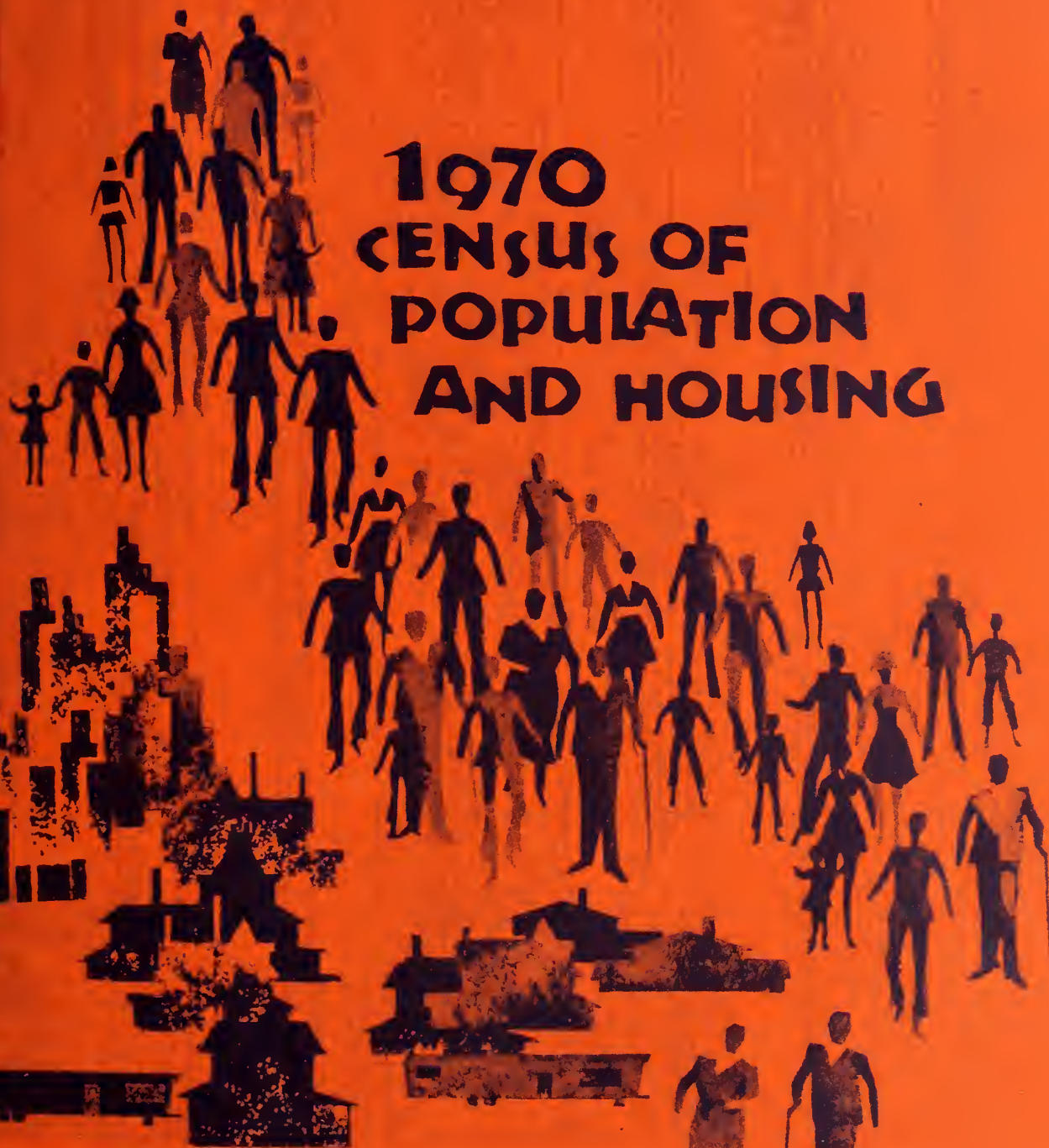
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Evaluation and
Research Program

The Employer Record Check

1970 CENSUS OF POPULATION AND HOUSING



U.S. Department of Commerce

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Manuel D. Plotkin, Director

Robert L. Hagan, Deputy Director

Daniel B. Levine, Associate Director for Demographic Fields

David L. Kaplan, Assistant Director for Demographic Censuses

POPULATION DIVISION

Meyer Zitter, Chief

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1970 CENSUS OF POPULATION AND HOUSING

Evaluation and Research Program

The Employer Record Check

Preface

This is one of a series of reports on results of the Evaluation and Research Program of the 1970 Census of Population and Housing. The program includes a variety of studies, each designed to produce data on the accuracy of selected subject matter or on the effectiveness of specific methodological features of the census-taking process. The results from these studies are published in the PHC(E) series of reports.

This report presents data on the accuracy of industry and occupation data as measured by responses of employers in the Employer Record Check.

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CHAPTER I

THEORY

DEFINITIONS

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The Employer Record Check

INTRODUCTION

The 1970 Census of Population and Housing evaluation and research program includes a number of studies which may be divided into two general categories:

- (1) Studies that measure coverage error, i.e., how completely persons and housing units were counted in the census. (See references 1, 2, and 3 on page 23.)
- (2) Studies that measure content error, i.e., the accuracy of data for enumerated persons and housing units. (See references 4 and 5.)

This report presents information on estimates of content error associated with industry and occupation data as reported in the 1970 Census of Population based on a comparison of the same information provided by employers. The universe for this study was restricted to persons enumerated as members of households (i.e., excludes persons living in group quarters such as rooming and boarding houses, jails, etc.). It was also restricted to paid employees in certain industries, as detailed later.

The method of record checks, matching data collected in the census with independent records of establishments showing the same data, is one of several procedures used to evaluate the content of the 1970 census. Reinterview of a sample of cases, which are then matched with census returns [4], and comparison of census data with the results of an independent survey, as the Current Population Survey (CPS) [5], are two other methods utilizing case-by-case comparisons. In addition, there are analytic methods of evaluation such as demographic analysis and comparisons of statistical aggregates from the census with aggregated data for the same population groups from other sources. For example, school enrollment data from the census can be compared with the figures on enrollment from the Office of Education. (These types of studies were also included in the 1970 census evaluation and research program, and the results have been reported in publications in the PHC(E) series.)

The 1970 Census of Population made available statistics on the demographic, social, and economic characteristics of the population such as age, sex, race, marital status, occupation, industry, and income. Response error in these statistics could have resulted from erroneous or inconsistent reporting of characteristics, failure to obtain responses for some of the information requested, and errors in the clerical or machine processing of the data. This report is devoted to the total effect of errors arising from erroneous reporting and inaccurate coding of occupation and industry responses on the quality of census data. The quality of industry and occupation coding in the census is also discussed separately in PHC(E)-8, *Coding Performance in the 1970 Census* [6]. In this report, the census figures on industry and occupation reflect data in the final form after all editing and imputation procedures had been completed. Therefore, the data presented here reflect the

quality of publication-level census statistics. The figures have not been inflated to national totals but represent actual counts of cases in the study.

Although there is considerable emphasis on geographic detail in the census, the analysis of the quality of the 1970 census is restricted to the national level. A separate evaluation of each area for which census data are presented is not feasible since the cost involved would be many times that of the census itself. Therefore, the measures of error presented do not necessarily apply to individual States, cities, or other local areas, but evidence has indicated that the factors involved in measurement error are fairly widespread and consistent throughout most areas of the country. For small areas (e.g., blocks, tracts, small towns) and for tabulation cells containing small frequencies, however, the reliability of the data may fluctuate from area to area or cell to cell. For such cases caution should be exercised in applying the measures of error shown in this report.

DESCRIPTION OF DATA PRESENTED

This report presents measures of gross error and net error or bias associated with the industry and occupation statistics in the 1970 Census of Population. Tables 1 through 4 show cross-tabulations of the 1970 census occupation classification for a sample of persons by comparable information provided by the same individuals' employers in the Employer Record Check (ERC) survey. Employers were asked to furnish both the job title and job description of the employee for the first half of 1970. If the employee had changed jobs during this period, the employer was to provide a secondary job title and description. Each of these pieces of information was assigned an occupation code. The census occupation codes were derived from responses to a three part inquiry on kind of work, most important activity, and job title. Tables 7 through 9 present indexes of response error for the occupation characteristics.

Also furnished by the employer was a description of the major activity and principle product or service of the establishment at which the employee worked. The ERC industry code was assigned using this information. The ERC industry code is compared to the assigned census code in table 5. Table 10 presents indexes of response error for industry.

Another objective of the ERC study was to measure the usefulness of the Company Name List and the industry question, "For whom did this person work?" The Company Name List, prepared from the master address list of the 1968 censuses of business, construction, manufactures, and minerals, contains the names of establishments and their Standard Industrial Classification (SIC) codes converted to population census equivalents. This listing facilitates coding and helps maintain industrial classification comparability. Table 6 compares the industry information received from the employer with the code listed in the Company Name List, the code derived from

the census industry description (item 33b), and the final 1970 census industry code. Indexes of response errors for these items are presented in table 11.

All tables in this report are restricted to persons who were located in both sources. The data in these tables provide for an analysis of the differences in absolute figures between the census and ERC. These data also provide the basis for calculating the measures of response or classification error shown in the index tables for industry and occupation. Descriptions of these measures are presented in a following section, and computational forms of these and other measures are shown in appendix C.

MEASURES OF RESPONSE ERROR

1. THE CONCEPT OF RESPONSE ERROR

In simple terms, a response error results from the assignment of a person to an incorrect category in a classification system. For example, if a person belongs to the occupation category, sales workers, a response error will result from the assignment of that person to one of the other occupation categories. This error could be the result of erroneous or incomplete information collected in the field or an error in processing the data during the coding operation. Such errors affect census data in at least three ways: (1) the errors may introduce bias into the estimates of the population characteristic; (2) the errors create variability in the classification of an element over repeated trials; and (3) the errors distort the relationships among variables. If only a single observation is available for each element, it is not possible to estimate directly the bias and variability associated with the classification process, although the bias may be estimated when data from an independent source are available. For the 1970 census evaluation programs, estimates of response error for a particular population characteristic were obtained by comparing, for identical persons, the responses obtained in the census and the responses obtained from another information source (e.g., the CPS, a reinterview, or a record source). For this study, the ERC reports are not error free, and it is not appropriate, therefore, to say that differences between the ERC and census reports for identical persons always reflect error in the census. Even so, such comparisons provide an estimate of the variability in classification of an element over repeated trials and, therefore, provide meaningful insights into the quality of the census data. (See section 2.B.)

The effect of response errors on the quality of the data obtained for a particular category of a classification system is reflected by the level of net and gross error associated with that category. For a particular category, response errors produce misclassifications both into and out of the category. The net error associated with a category represents the difference between the number of persons erroneously included in the category and the number erroneously omitted from the category, whereas the gross error represents the sum of those numbers or the total number of response errors associated with the category. The net error reflects bias in the category, and the gross error reflects the variability in the classification process.

2. SUMMARY MEASURES OF RESPONSE ERROR

In this report, two measures of response error are presented for the comparison of ERC and census data for identical

persons. One measure describes the amount of net error, and the other measure describes the amount of gross error associated with the data. Appendix C presents the formulas for computing the measures. All estimates of response error presented in this report have been multiplied by 100 so that the computed values can be discussed as percentages.

A. Measure of Net Error

The measure of net error or bias presented in this report is the **net difference rate**. The net difference rate for a particular category describes the absolute difference between the census proportion of persons in the category and the ERC proportion of persons in that category. A positive value of the net difference rate indicates that the proportion of persons in the category according to the census is greater than the corresponding ERC proportion, whereas a negative value indicates that the census proportion is less than the corresponding ERC proportion. A difference between the census and ERC estimates which is beyond that expected from sampling variability indicates bias in the census statistics when the ERC data are considered to be more accurate. For the industry and occupation data included in this report, the ERC can be viewed as a more accurate source of data, and the net difference rate may be interpreted as a measure of bias. The index tables displayed in this report show the proportion of persons in a category according to ERC as well as the net difference rate. The sum of these two values equals the proportion of persons in the category according to the census.

Another measure of bias for any category can also be derived. This measure, referred to as the **net shift**, is obtained by dividing the net difference rate for the category by the best estimate of the proportion of persons in that category—the ERC estimate for this report (the formula for this measure is also presented in appendix C). However, the net shift is not shown in this report since the net difference rate provides a somewhat more reliable estimate of bias (i.e., has a smaller sampling error).

B. Measure of Gross Error

The measure of gross error or response variability presented in this report is the **index of inconsistency**.

There are various ways of interpreting the index of inconsistency. Although each interpretation uses different terms, they are closely related. The interpretations are as follows:

- (i) If each of the two observations is regarded as an independent repetition of the same census or survey procedures, the index of inconsistency estimates the ratio of simple response variance to the total variance.¹

The total variance of responses for a population equals the average simple response variance for the persons in the population (i.e., the variation among one person's responses over repeated independent trials) plus the sampling variance (i.e., the variance between persons). When identical responses are obtained from observation to observation for each person, the simple response variance is zero, and the value of the index of inconsistency is zero. When responses are so variable that simple response variance equals total variance, the

¹ The concept of response variance and this method of interpreting the index were originally developed by Hanson, Hurwitz, and Bershada and are discussed fully in a number of references [17 and 18]. Interpretations (ii) and (iii) given in this section are extensions of that original model [19].

value of the index is 100. The latter case is analogous to the situation that, in obtaining a single response from N individuals, we have nothing more reliable than could be obtained if one took any individual in the population and interviewed him N times independently.

- (ii) Consider each person in the population as having a cluster of potential responses which could be generated by independent repetition of the same census procedures. If two responses are selected at random from this cluster, the index of inconsistency is the complement of the average intraclass correlation (δ) among the responses for each person (that is, $I = 100(1 - \delta)$). When $\delta = 1$, there is perfect positive correlation between the pairs of responses for all individuals, and the index equals zero. When $\delta = 0$, there is no correlation between the pairs of responses, and the index equals 100. This interpretation of the index of inconsistency is analogous to that given in section (i) above.

Alternately, consider that there are two clusters of potential responses associated with each person, each being generated by an independent repetition of different procedures (e.g., the census and the ERC). If one response is selected at random from each cluster, the index of inconsistency is approximately the complement of the average correlation ($\rho_{GG'}$) between the responses obtained using different procedures for each person (i.e., $I = 100(1 - \rho_{GG'})$ where G denotes the general survey conditions associated with one procedure and G' denotes the general survey conditions associated with the other procedure). When $\rho_{GG'} = 1$, there is perfect positive correlation between the responses obtained for each procedure for each individual, and the index equals zero. When $\rho_{GG'} = 0$, there is no correlation between the responses obtained for each procedure for each individual, and the index equals 100. (If the census estimate is biased, the correlation cannot be perfect and the index cannot be zero.) This interpretation is analogous to that given in section (iii) below.

- (iii) The index of inconsistency may also be interpreted as a standardized measure of response differences, in that the observed number of response differences is shown relative to a standard—the standard being the expected number of response differences that would occur if the pairs of observations were formed by random association. Under this interpretation, the index measures inconsistency on a scale from zero (perfect consistency) to 100 (complete lack of consistency).²

Under the conditions of this study, the level of difference observed between the ERC and census classifications for occupation and industry generally reflects that where the ERC is not an attempt to repeat the original interview procedure, but

represents an improved data source. Therefore, the estimated index of inconsistency is almost sure to be an understatement of the ratio of the simple response variance of the original interview procedure to the total variance. Thus, interpretation of the index in these terms, as given in section (i), is questionable and that given in the latter part of section (ii) and in section (iii) are more appropriate.

Values of the index of inconsistency are computed and displayed for each category in a distribution. For distributions with more than two categories, an index of inconsistency for the entire distribution, referred to as an *L-fold index of inconsistency*, is also displayed [20]. This index is a weighted average of the individual indexes computed for each category of the distribution. Conceptually, this measure is similar to the indexes computed for individual categories. That is, it expresses the ratio of the observed number of differences in the entire distribution to the number of response differences that would be expected to result from a random association between the *L-fold* classifications on the first and second observations.

The index of inconsistency is only one of several measures that might be used to describe the total number of response differences (gross error) associated with data. Several alternative measures, such as "gross difference rate," "gross shift," and "percent identically reported" are discussed in a number of references, [7] through [15]. From among these measures, the index of inconsistency was used for this analysis because it provides a basis for direct comparison of the consistency of responses between various details of classification for the same characteristic, between various methods of data collection, or from one census to another.

It should be recognized that the level of the index is sensitive to the detail of the categories in which the data are collected or tabulated. As the detail of the categories is decreased, the index cannot increase and will most likely decrease. Thus, the response variance associated with a particular distribution may be decreased to some extent by collapsing the categories of that distribution.

3. SAMPLING VARIABILITY

Measures of response error (index of inconsistency and net difference rate) presented in this report are based on a sample and are, therefore, subject to sampling variability. For this report, a 95-percent confidence interval has been constructed and is shown in the tables for each of the estimated response error measures. That is, if all possible samples were selected, each of these surveyed under essentially the same general conditions and an estimate and its estimated standard error were calculated from each sample, then approximately 95 percent of the intervals from two standard errors below the estimate to two standard errors above the estimate would include the average value of all possible samples. The average value of all possible samples may or may not be contained in any particular computed interval. But for a particular sample, one can say with specified confidence that the average of all possible samples is included in the constructed interval. These confidence intervals have been estimated from the sample results and provide a rough approximation of the extent of sampling error associated with each estimate. The 95-percent confidence intervals were estimated by assuming that the sample design consisted of a simple random sample of persons rather than the design actually used (i.e., a stratified multistage systematic cluster sample of households). Thus, these intervals should be interpreted as providing an indication of only the

²When concerned with two different procedures rather than with a repeat of the same procedure, the theoretical upper limit for the estimated index of inconsistency is 200. This maximum would occur when there are only two categories, the population is distributed between the two categories in equal proportions, and there is a perfect negative correlation between the two observations for all persons. That is, persons classified as "in category" on the first observation are classified as "not in category" on the second observation and vice versa. The nature of the data collected and the data-collection procedures used lead us to expect a positive correlation between observations in this study. Thus, for the data collected in the ERC and the census it is assumed that the true value of any index is never greater than 100. Despite this assumption, a computed value of the index above 100 might occur as a result of sampling error. To reduce the risk of showing unreliable indexes, the index was not estimated unless at least 10 sample observations were reported as "in the category" by either the census or ERC.

minimum amount of sampling variability associated with the estimates. The formula used to compute the 95-percent confidence interval for each measure is provided in appendix C.

4. USE OF RESPONSE ERROR MEASURES IN EVALUATING THE QUALITY OF DATA

Of the two summary response error measures used in this report, the index of inconsistency probably provides the most information on the accuracy of the data collected, whereas the net difference rate can be used to adjust published census distributions. For categories in a distribution where the sample data provide evidence of bias and when the ERC data can be assumed to be more accurate, the net difference rate can be added to the published census percent in the class to correct the bias. The index of inconsistency cannot be used to correct census distributions, but it provides insights into the reliability of the data presented in the published distributions (both simple distributions and cross-tabulations). For this report, both measures describe the effect of response errors which occurred in the field stage of enumeration as well as the effects of subsequent clerical and computer processing operations. Thus, these summary measures indicate the amount of inconsistency and bias associated with the published census data. Where a simple distribution of a characteristic is presented (e.g., employed persons by occupation), both the net difference rate and the index of inconsistency provide information about the quality of the data collected. The net difference rate and its 95-percent confidence interval indicate whether systematic errors in reporting have introduced biases into the distribution (provided that it can be assumed that the ERC data are more accurate than the census data). A bias in a particular category of a distribution is indicated when the 95-percent confidence interval of the net difference rate does not include zero as a possible value. As stated earlier, the sign on the limits of the interval indicates the direction of the bias—a positive value indicates that the estimated census percent in class is greater than the corresponding ERC percent, whereas a negative value indicates the opposite.

The indexes of inconsistency associated with a simple distribution are important in evaluating the adequacy of the data-collection method for providing valid measures of the characteristics in the distribution. For the purpose of evaluating the adequacy of a data-collection system, indexes under 20 are considered small, those between 20 and 50 are moderate, and those over 50 are large. Large values of the index for a particular statistic or entire distribution are an indication that (1) improvements are required in the method used to collect these data, (2) the concept itself may not be measurable by a household survey method, or (3) respondents are not able to provide accurate information to the detail desired. An additional point needs to be considered when evaluating the level of the index of inconsistency. The index of inconsistency is not sensitive to the magnitude of a response error. For example, in a distribution with ordinal categories, such as educational attainment, a difference in reporting of 1 year of school completed and a difference in reporting of 5 years of school completed are weighted equally in the index of inconsistency. Thus, for these types of distributions an examination of the detailed cross-classification is required to determine the magnitude of the response errors.

For one characteristic presented in a cross-tabulation with another characteristic (e.g., occupation by industry), erroneous classification into or out of the various categories of the distribution of either characteristic could introduce biases into

the cross-tabulated data. In addition, the greater the index of inconsistency for each of the characteristics, the more likely it is that relationships between the characteristics are distorted. The expected effect is reduction of correlation among characteristics. No cross-tabulations of characteristics are shown in this study. However, for cases in which indexes of inconsistency are shown separately for all or some of the characteristics in other cross-tabulations of interest, the indexes may serve as a guide in making inferences about the quality of the cross-tabulated data.

If the indexes of inconsistency associated with each of the characteristics involved in the cross-tabulation are large (over 50), it is likely that the cross-tabulated data are subject to serious biases. In such cases, the user is advised to exercise caution when using the data, particularly when inferences regarding the relationships between the characteristics are desired. Conversely, if the indexes of inconsistency associated with each of the characteristics are small (under 20), the user can be somewhat more confident about the accuracy of the cross-tabulated data.

There are no specific guidelines which are appropriate for levels between these extremes (i.e., moderate level indexes as well as combinations of levels). For these situations the user should again exercise caution when using the data and recognize that even a moderate degree of inconsistency in one or all of the characteristics can produce serious distortions in cross-tabulated data.

HIGHLIGHTS

Some of the major findings of the ERC study reveal that—

The census was generally more effective in the classification of industry than occupation. At the major group level, the estimated L-fold index of inconsistency was 17 (low) for industry compared to 24 (moderate) for the occupation primary job description.

Among industries, wholesale trade appears to be the most difficult to classify. This industry has classification problems in two directions. In some cases there is confusion as to whether the case should be manufacturing or wholesale trade. In other cases the confusion is between wholesale trade and retail trade.

The Company Name List is valuable in determining the correct industry code, but is hampered by its limited coverage.

On the whole, the reporting of occupation in the 1970 census was no better nor worse than the reporting in the 1960 census. There did appear to be some improvement in the reporting of industry.

The results of the 1970 ERC study did not differ substantially from those of its companion study, the 1970 CPS-Census Match.

SUMMARY OF RESULTS

OCCUPATION

At the major group level, the reporting of occupation was moderately inconsistent between the ERC and the census. Com-

parisons of the census occupation codes with the employers' reports on primary job title yielded an L-fold index of 25; for primary job description, the index was essentially the same, 24 (table 7). For both the primary job title and primary job description, four of the nine major occupation groups shown had indexes of inconsistency of approximately 21 or less (table 7). Although the indexes for primary job description were numerically lower than those for primary job title for all major occupation groups except two, the differences were not statistically significant. Therefore, further discussion of occupation at either the major group or detailed level refers to the primary job description data.

Classification of service workers, except private household was among the most consistent between the ERC and census. Comparisons of the census code with the primary job description yielded an index of 14. Within the major group, food service and protective service jobs had low indexes of inconsistency. About 90 percent of persons classified either as food service workers or as protective service workers in the ERC were in the same group in the census (table 4).

Classification of specific occupations within major groups produces higher indexes of inconsistency than their respective major groups because of additional misclassification within the group (as well as between group misclassification). Such is the case for clerical workers whose index of inconsistency was 21 for the major group (table 7), but 47 for the specific occupation "bookkeeper" (table 9). One problem in the census apparently was distinguishing bookkeepers from accountants. The following responses to the three census occupation questions illustrate possible sources of confusion:

- (a) Accounting work
- (b) Prepares financial reports
- (c) Clerk

Using items (a) and (b) the better code would be accountant, but based on item (c), the correct classification could be bookkeeper. Another example of a common problem—inadequate response—is the failure to report the use of an office machine. In the census, if an accounting clerk who uses an accounting machine does not give a complete report, but only reports "accounting clerk," the person would be classified as a "bookkeeper" rather than in the correct category of "bookkeeping and billing machine operators."

Classification of the two major occupation groups "managers and administrators, except farm" and "sales workers" was moderately inconsistent between the ERC and census. The index of inconsistency was 35 for managers and 27 for sales workers (table 7). One problem in classifying managers is determining from the responses whether their duties are primarily managerial. This is illustrated by the exchange of cases among managers and sales workers in the ERC and the census. Among persons classified as "retail trade managers" in the ERC but in some other occupation in the census, nearly half were retail sales workers. A salesperson who reports "salesman-buyer" (kind of work) and "drygoods salesman" (most important activity) would be correctly classified with sales workers in the census, but might be classified with managers in the ERC if the job description emphasized the buyer role. Although the census major activity question and ERC job description are similar in design, the example above illustrates the reason for the undercount of managers in the census and the overcount of sales workers. (See table 7, columns 4 and 5.)

Historically, the information on the census questionnaire has made classification difficult for the major groups of craft workers, operatives, and laborers. It follows that occupations within these groups would have relatively high indexes of inconsistency. Comparison of the employer's primary job description and the census classification produced indexes ranging from 23 to 61 for specific blue-collar occupation groupings. Occupations which had relatively high indexes were metal craft (40), nonmanufacturing operatives, except transport (55), and freight, stock, and material handlers (59). Of those persons classified as metalcraft workers in the ERC, 18.6 percent were classified in the census as operatives, except transport (table 4). Machinists (craft) and machine operatives (operative) are examples of two problem occupations in this area.

At the major group level, classification of laborers, except farm, with an index of inconsistency of 50 for primary job description, was the least consistent between the census and the ERC (table 7). One-fifth of the construction laborers in the ERC were classified as construction craft workers in the census. Also, a sizeable number of persons counted as laborers in either the ERC or the census were classified as clerical workers in the other source. Although table 4 does not show enough detail to specify pairs of confusing occupations, it does indicate that among laborers, the occupation "freight, stock, and material handlers" suffers from misclassification. One illustration of this problem is that a stock clerk (clerical) and stock handler (laborer) could both have duties including recording inventory and stocking shelves—the distinction can be made only on the basis on which type of duty is emphasized in the description.

INDUSTRY

Employer and employee are slightly more consistent in their responses for industry than occupation. In the comparison of the employer's report and the final census industry code, the L-fold index was 17 (table 10). Generally, industry groups had smaller indexes of inconsistency than was true for occupation groups.

Wholesale trade was one of the major industry groups with a moderately high index of inconsistency. As can be seen in table 5, the off-diagonal cases for wholesale trade are concentrated in manufacturing and retail trade. A manufacturer's sales office at a location separate from the parent company should be reported as a wholesale establishment, but is sometimes reported as a manufacturing establishment. Trade establishments that have both wholesale and retail activities may also be reported incorrectly.

Confusion in deciding what are the primary and secondary functions of the establishment also affects the business and repair services category. For example, a clock manufacturer with a repair shop on the premises should be coded as clock manufacturing. However, one of the clock servicers might be incorrectly coded as working for a clock repair shop. Thus, a number of cases coded to manufacturing in either the ERC or the census were classified as being employed in business and repair services in the other data source.

To measure the usefulness of the 1970 census Company Name List, census items 33a "For whom do you work?" and 33b "Kind of business or industry" were coded independently. The coding experts were instructed to use only the Company Name List to assign an industry code based on the company name (item 33a). The industry description (item 33b) was then coded using only the *Alphabetical Index of Industries and Occupations*, the 1970 census coding manual (table 6). The

industry data in table 6 have been restricted to the seven categories shown to reflect the universe of industries covered by the Company Name List. These include mining, construction, manufacturing, trade, and service establishments. The classification of industry was relatively consistent for those persons whose employers' industries could be obtained from the Company Name List. A comparison of the Company Name List classification and the census resulted in a low L-fold index of 12 and a net difference rate that differed from zero for only one industry (table 11). However, only 1,272 cases could be coded from the list—62 percent of the 2,036 cases which could be coded using both the Company Name List and the industry description (tables 5 and 6). Coding by the industry description alone also resulted in a low L-fold index (13). This index and the specific indexes for the industry categories were not statistically different from the Company Name List indexes. There were 1,758 cases that could be coded from the industry description. This is 86 percent of those that could be coded using both

items. Thus, either the company name or the industry description will produce an accurate industry code when a satisfactory entry is given, but a large percentage of cases can not be coded by just one item. The Company Name List would be more useful if its coverage could be improved.

Comparison With the 1960 Employer Record Check [11]

The difference between the 1960 and 1970 L-fold indexes for occupation is not significant. However, sales workers in 1960 had a significantly lower index of inconsistency than in 1970. All other differences were not significant at the 95-percent confidence level.

The results for industry are quite different. The 1970 L-fold index (14) is significantly lower at the 95-percent confidence

Table A. Index of Inconsistency for Major Occupation and Industry Employer Record Check: 1970 and 1960

Employer classification (ERC)	1970		1960 ¹	
	Index of inconsistency	95-percent confidence interval for index of in- consistency	Index of inconsistency	95-percent confidence interval for index of in- consistency
MAJOR OCCUPATION (Primary job description)				
L-fold index.....	24	22.7 to 25.9	22	19.9 to 24.5
Professional, technical, and kindred workers.....	18	15.5 to 21.0	17	13.4 to 22.7
Managers and administrators, except farm.....	35	30.6 to 41.1	35	27.0 to 44.8
Sales workers.....	27	22.3 to 33.1	15	11.1 to 21.1
Clerical workers.....	21	18.3 to 23.7	19	15.1 to 23.4
Craft and kindred workers.....	28	24.1 to 31.6	26	21.2 to 31.0
Operatives, including trans- port.....	23	20.1 to 26.0	22	18.7 to 26.7
Laborers, except farm.....	50	42.7 to 58.9	42	32.0 to 53.8
Service workers, except private household.....	14	11.8 to 18.8	15	11.0 to 20.1
MAJOR INDUSTRY				
L-fold index.....	14	12.1 to 15.7	19	16.3 to 21.8
Mining.....	19	9.7 to 35.8	(S)	(S)
Construction.....	9	5.8 to 13.2	20	13.4 to 29.2
Durable goods manufacturing....	10	7.7 to 11.9	14	10.8 to 17.4
Nondurable goods manufacturing.	14	11.2 to 16.9	17	13.2 to 20.9
Wholesale trade.....	32	26.0 to 39.0	51	40.3 to 63.4
Retail trade.....	12	9.7 to 15.0	14	10.7 to 18.1
Business and repair services...	18	11.9 to 26.3	32	20.0 to 50.8

S Does not meet publication standards.

¹The national totals have been deflated to represent approximate number of sampled persons.

Source: Tables 1, 5, and 1960 Employer Record Check Study [11].

interval than the 1960 index (19). In comparing the indexes for the listed industries, one finds each of the industries to have a numerically lower index in 1970 than 1960. Two of these are significant at the 95-percent confidence interval—construction with 1970 and 1960 indexes of 9 and 20, respectively, and wholesale trade with indexes of 32 and 51. The 1960 indexes of inconsistency for the industries shown were recomputed from those shown in the 1960 report to eliminate methodological differences between the two studies. Specifically, the 1960 report presented figures weighted to U.S. totals, whereas the 1970 report shows the number of sample cases. Also the 1970 report limited the industry comparison to those industries covered on the Company Name List. Because of this, the "other industries" line was eliminated from both distributions.

Comparison With the 1970 CPS-Census Match

The results of the 1970 ERC study were very similar to those of its companion study, the 1970 CPS-Census Match [5]. Comparison of the final census classification with that from the CPS and the employer's responses yielded essentially the same indexes of inconsistency in occupation. However, there were some differences for industry. The L-fold index in the ERC (14) was lower than for the CPS-Census Match (18). Although none of the indexes for specific industry groups differed significantly, all ERC indexes were numerically lower than those observed in the CPS-Census Match study. However, the ERC responses of employers are considered to be more accurate and, therefore, a better standard for comparison than those of persons interviewed in the CPS.

Table B. Index of Inconsistency for Major Occupation and Industry: 1970 Employer Record Check and 1970 CPS-Census Match

Major occupation and industry	1970 Employer Record Check		1970 CPS-Census Match	
	Index of inconsistency	95-percent confidence interval for index of inconsistency	Index of inconsistency	95-percent confidence interval for index of inconsistency
MAJOR OCCUPATION (Primary job description)				
L-fold index.....	24	22.6 to 25.8	27	25.5 to 27.8
Professional, technical, and kindred workers.....	18	15.5 to 21.0	20	18.1 to 22.1
Managers and administrators, except farm.....	35	30.6 to 41.1	39	35.6 to 42.2
Sales workers.....	27	22.3 to 33.1	30	26.6 to 33.8
Clerical and kindred workers...	21	18.3 to 23.7	22	20.6 to 24.5
Craft and kindred workers.....	28	24.1 to 31.6	30	27.4 to 32.6
Operatives, except transport...	24	21.0 to 27.7	24	22.0 to 26.7
Transport equipment operatives.	17	12.5 to 22.6	25	20.8 to 29.3
Laborers, except farm.....	50	42.7 to 58.9	48	43.0 to 53.9
Service workers, except private household.....	14	11.8 to 17.8	18	15.7 to 20.3
MAJOR INDUSTRY				
L-fold index.....	14	12.1 to 15.7	18	16.9 to 19.6
Mining.....	19	9.7 to 35.8	24	16.8 to 35.6
Construction.....	9	5.8 to 13.2	14	11.9 to 17.5
Durable goods manufacturing....	10	7.7 to 11.9	14	12.0 to 15.5
Nondurable goods manufacturing.	14	11.2 to 16.9	17	15.2 to 19.8
Wholesale trade.....	32	26.0 to 39.0	42	36.5 to 47.5
Retail trade.....	12	9.7 to 15.0	15	13.4 to 17.3
Business and repair services...	18	11.9 to 26.3	27	22.5 to 33.1

Source: Tables 7, 10, and 1970 CPS-Census Match Study [5].

METHODS AND DESIGN

The data in this study result from the comparison of occupation and industry information collected in the 1970 Census of Population to corresponding information reported by employers in the ERC.³ The ERC sample was selected as part of the 1970 CPS-Census Match Study [5] from persons who were in both

the March 1970 CPS⁴ and the census 15-percent sample. (See appendix B.) The study was restricted to persons enumerated on the 15-percent census questionnaires since the question on employer's address was asked only in the 15-percent sample.

⁴A detailed description of the CPS appears in "Concepts and Methods Used in Labor Force Statistics Derived from the Current Population Survey," *Current Population Reports*, Series P-23, No. 62, October 1976, U.S. Department of Commerce, Bureau of the Census, and U.S. Department of Labor, Bureau of Labor Statistics.

³See Appendix A for forms used in the ERC.

For each person in the ERC sample, a separate form (the ERC Worksheet) was prepared containing the sample person's census industry, occupation, class of worker, and place of work (employer's mailing address). After verification of the employer's mailing address, the ERC questionnaires were mailed to the employers. Upon their return, the ERC questionnaires were matched with their corresponding worksheets for coding of the industry, occupation, and place-of-work items as reported by the employer. The coding was performed by experts so that the ERC codes could be considered as the standard for comparison with the codes assigned in the census. When the coding was completed, the information was transferred to computer tape and merged with the 1970 CPS-Census Match data tape. The resultant data tape was used to create the tabulations shown in this report.

Because this study is based on information reported by employers, certain employed persons are excluded from the sample. These include persons classified in the census as self-employed or unpaid family workers; farmers, farm managers, farm laborers, or farm foremen; private household workers; and persons who failed to report his or her employer in the census.

To evaluate the Company Name List against the responses of employers, data on industry were restricted to mining, construction, manufacturing, wholesale trade, retail trade, and business and repair services.

LIMITATIONS OF THE DATA

1. Since the occupation and industry data examined in the ERC study refer to persons enumerated in the census 15-percent sample and matched to a CPS schedule as part of the CPS-Census Match Study, the number of persons selected for this study was necessarily limited. The results of the mailout after sample selection requirements were met is illustrated below.

	Number	Percent
ERC questionnaires mailed	6,245	100.0
Total receipts	5,387	86.3
Receipts from initial mailout	4,569	73.2
Receipts from follow-up	818	13.1
Total Post Office returns	227	3.6
Total nonresponses	631	10.1

The number of cases actually shown in the tables are less than the total 5,387 ERC questionnaires received. In computer processing, the ERC, census, and CPS identification information transcribed from the ERC worksheet had to match to both a CPS record and its companion census 15-percent record to produce a valid ERC case. Any discrepancy in this link reduced the number of ERC cases. In addition, any data items left blank on the ERC questionnaire could not be coded and, therefore, these cases do not appear in the tables covering those data items. As the purpose of this study is to measure the response error associated with industry and occupation as reported in the census, the number of cases shown in the tables will vary according to the items matched on the ERC and census schedules. Therefore, if the response error distributions of the unmatched cases were generally different from those for the matched population, the distributions and summary measures shown in this report would be biased.

2. Even though it is assumed that the employer report of occupation and industry is more accurate, the ERC is obviously subject to some degree of error. Therefore, differences between the census and ERC can not always be considered as census errors.

RELATED REPORTS

The concepts and methods used in the classification of industry and occupation data in both the 1970 census and the ERC are described in **1970 Census of Population, Volume 1, Characteristics of the Population, Part 1, United States Summary**, which also includes data on detailed industry and occupation characteristics.

Studies similar in scope to the 1970 evaluation and research program were undertaken in 1960 and 1950. (See references [7] through [16].) In the 1950 study, comparative industry and occupation statistics were collected by a post-enumeration study [16] instead of from employers. Although the methods of conducting these studies and the manner of presenting the results differed somewhat from those used in this study, the results are generally comparable.

Table 1. Major Occupation Group According to Primary Job Title and Primary Job Description Reported by Employer and 1970 Census

Employer classification (ERC)	Census classification									
	Occu- pation reported	Profes- sional, techni- cal, and kindred workers	Managers and adminis- trators, except farm	Sales workers	Clerical and kindred workers	Craft and kindred workers	Opera- tives, except trans- port	Trans- port equip- ment opera- tives	Laborers, except farm	Service workers, except private house- hold
PRIMARY JOB TITLE										
Occupation reported.....	3,561	621	270	220	774	464	538	147	149	378
Professional, technical, and kindred workers....	586	<u>514</u>	14	5	24	10	11	1	2	5
Managers and adminis- trators, except farm...	349	37	<u>204</u>	34	34	24	5	2	3	6
Sales workers.....	184	4	<u>9</u>	<u>146</u>	12	3	2	3	1	4
Clerical and kindred workers.....	761	27	23	17	<u>640</u>	11	18	3	14	8
Craft and kindred workers.....	452	14	17	4	16	<u>337</u>	40	8	9	7
Operatives, except transport.....	521	2	2	2	16	48	<u>413</u>	5	26	7
Transport equipment operatives.....	129	1	-	2	2	2	3	<u>113</u>	4	2
Laborers, except farm...	196	4	-	6	19	20	40	<u>11</u>	<u>86</u>	10
Service workers, except private household.....	383	18	1	4	11	9	6	1	4	<u>329</u>
PRIMARY JOB DESCRIPTION										
Occupation reported.....	3,430	589	262	213	741	453	527	146	141	358
Professional, technical, and kindred workers....	555	<u>486</u>	14	5	26	7	10	1	1	5
Managers and adminis- trators, except farm...	310	33	<u>193</u>	26	28	20	4	1	2	3
Sales workers.....	185	4	<u>11</u>	<u>148</u>	10	2	2	3	2	3
Clerical and kindred workers.....	734	26	25	16	<u>617</u>	12	17	2	11	8
Craft and kindred workers.....	457	13	16	4	16	<u>346</u>	37	8	9	8
Operatives, except transport.....	507	3	2	2	15	41	<u>411</u>	3	23	7
Transport equipment operatives.....	133	1	-	2	1	2	4	<u>117</u>	5	1
Laborers, except farm...	181	4	-	7	18	15	36	<u>10</u>	<u>84</u>	7
Service workers, except private household.....	368	19	1	3	10	8	6	1	4	<u>316</u>

- Represents zero.

Table 2. Percent Distribution: Major Occupation Group According to Primary Job Title and Primary Job Description Reported by Employer and 1970 Census

Employer classification (ERC)	Census classification										
	Occupation reported		Profes- sional, techni- cal, and kindred workers	Managers and adminis- trators, except farm	Sales workers	Clerical and kindred workers	Craft and kindred workers	Opera- tives, except trans- port	Trans- port equip- ment opera- tives	Laborers, except farm	Service workers, except private house- hold
	Number	Percent									
PRIMARY JOB TITLE											
Occupation reported.....	3,561	100.0	17.4	7.6	6.2	21.7	3.0	15.1	4.1	4.2	10.6
Professional, technical, and kindred workers.....	586	100.0	<u>87.7</u>	2.4	0.9	4.1	1.7	1.9	0.2	0.3	0.9
Managers and adminis- trators, except farm.....	349	100.0	10.6	<u>58.5</u>	9.7	9.7	6.9	1.4	0.6	0.9	1.7
Sales workers.....	184	100.0	2.2	<u>4.9</u>	<u>79.3</u>	6.5	1.6	1.1	1.6	0.5	2.2
Clerical and kindred workers.....	761	100.0	3.5	3.0	2.2	<u>84.1</u>	1.4	2.4	0.4	1.8	1.1
Craft and kindred workers.....	452	100.0	3.1	3.8	0.9	3.5	<u>74.6</u>	8.8	1.8	2.0	1.5
Operatives, except transport.....	521	100.0	0.4	0.4	0.4	3.1	9.2	<u>79.3</u>	1.0	5.0	1.3
Transport equipment operatives.....	129	100.0	0.8	-	1.6	1.6	1.6	2.3	<u>87.6</u>	3.1	1.6
Laborers, except farm.....	196	100.0	2.0	-	3.1	9.7	10.2	20.4	<u>5.6</u>	<u>43.9</u>	5.1
Service workers, except private household.....	383	100.0	4.7	0.3	1.0	2.9	2.3	1.6	0.3	1.0	<u>85.9</u>
PRIMARY JOB DESCRIPTION											
Occupation reported.....	3,430	100.0	17.2	7.6	6.2	21.6	13.2	15.4	4.3	4.1	10.4
Professional, technical, and kindred workers.....	555	100.0	<u>87.6</u>	2.5	0.9	4.7	1.3	1.8	0.2	0.2	0.9
Managers and adminis- trators, except farm.....	310	100.0	10.6	<u>62.3</u>	8.4	9.0	6.5	1.3	0.3	0.6	1.0
Sales workers.....	185	100.0	2.2	<u>5.9</u>	<u>80.0</u>	5.4	1.1	1.1	1.6	1.1	1.6
Clerical and kindred workers.....	734	100.0	3.5	3.4	2.2	<u>84.1</u>	1.6	2.3	0.3	1.5	1.1
Craft and kindred workers.....	457	100.0	2.8	3.5	0.9	3.5	<u>75.7</u>	8.1	1.8	2.0	1.8
Operatives, except transport.....	507	100.0	0.6	0.4	0.4	3.0	8.1	<u>81.1</u>	0.6	4.5	1.4
Transport equipment operatives.....	133	100.0	0.8	-	1.5	0.8	1.5	3.0	<u>88.0</u>	3.8	0.8
Laborers, except farm.....	181	100.0	2.2	-	3.9	9.9	8.3	19.9	<u>5.5</u>	<u>46.4</u>	3.9
Service workers, except private household.....	368	100.0	5.2	0.3	0.8	2.7	2.2	1.6	0.3	1.1	<u>85.9</u>

- Represents zero.

Table 3. Occupation Group According to Primary Job Title Reported by Employer and 1970 Census

(Data shown are number of persons with an entry in the ERC primary job title item)

Employer classification (ERC)	Census classification										
	Occu- pation reported	Professional, technical, and kindred workers				Managers and adminis- trators, except farm			Sales workers		
		Total	Engi- neers	Health workers	Techni- cians, except health	Total sala- ried	Manufac- turing	Retail trade	Total	Manufac- turing and whole- sale trade	Retail trade
Total occupation reported.....	3,561	621	78	78	56	270	54	61	220	56	116
Professional, technical, and kindred workers.....	586	<u>514</u>	69	57	46	14	3	-	5	3	2
Engineers.....	81	66	<u>58</u>	-	3	3	2	-	1	1	-
Health workers.....	65	58	-	<u>56</u>	-	1	-	-	1	-	1
Technicians, except health.....	75	57	9	1	<u>38</u>	1	-	-	-	-	-
Other professional, technical, and kindred workers.....	365	333	2	-	5	9	1	-	3	2	1
Managers and adminis- trators, except farm.....	349	37	3	4	2	<u>204</u>	37	49	34	9	19
Manufacturing.....	67	11	2	-	1	<u>37</u>	<u>35</u>	-	4	3	-
Retail trade.....	84	4	-	1	1	46	-	<u>45</u>	19	1	18
All other industries....	198	22	1	3	-	121	2	4	11	5	1
Sales workers.....	184	4	1	-	-	9	1	6	<u>146</u>	38	73
Manufacturing and whole- sale trade.....	50	4	1	-	-	2	1	-	39	<u>34</u>	4
Retail trade.....	99	-	-	-	-	5	-	5	76	4	<u>69</u>
All other industries....	35	-	-	-	-	2	-	1	31	-	-
Clerical and kindred workers.....	761	27	-	1	2	23	4	4	17	1	10
Bookkeepers.....	60	3	-	-	-	-	-	-	2	-	2
Secretaries, stenog- raphers, and typists...	195	4	-	1	-	1	-	-	-	-	-
Craft and kindred workers.....	452	14	4	1	5	17	7	2	4	2	2
Mechanics and repairers..	110	5	1	-	4	4	1	1	1	1	-
Metalcraft, except mechanics.....	63	1	-	-	-	-	-	-	1	1	-
Construction craft.....	99	-	-	-	-	3	-	-	1	-	1
Operatives, except transport.....	521	2	-	1	1	2	2	-	2	-	2
Manufacturing.....	414	1	-	1	-	2	2	-	1	-	1
Nonmanufacturing.....	107	1	-	-	1	-	-	-	1	-	1
Transport equipment operatives.....	129	1	1	-	-	-	-	-	2	2	-
Truck drivers.....	61	-	-	-	-	-	-	-	-	-	-
Other transport equip- ment operatives.....	68	1	1	-	-	-	-	-	2	2	-
Laborers, except farm.....	196	4	-	1	-	-	-	-	6	-	6
Construction laborers...	32	-	-	-	-	-	-	-	-	-	-
Freight, stock, and material handlers.....	89	1	-	-	-	-	-	-	4	-	4
Other laborers, except farm.....	75	3	-	1	-	-	-	-	2	-	2
Service workers, except private household.....	383	18	-	13	-	1	-	-	4	1	2
Cleaning service workers	93	-	-	-	-	-	-	-	1	-	-
Food service workers....	121	1	-	-	-	-	-	-	1	-	1
Health service workers..	70	14	-	13	-	-	-	-	-	-	-
Personal service workers	48	3	-	-	-	1	-	-	2	1	1
Protective service workers.....	51	-	-	-	-	-	-	-	-	-	-

- Represents zero.

Table 3. Occupation Group According to Primary Job Title Reported by Employer and 1970 Census—Continued

(Data shown are number of persons with an entry in the ERC primary job title item)

Employer classification (ERC)	Census classification--Continued									
	Clerical and kindred workers			Craft and kindred workers				Operatives, except transport		
	Total	Book-keepers	Secretaries, stenographers, and typists	Total	Mechanics and repairers	Metal-craft, except mechanics	Construction craft	Total	Manufacturing	Non-manufacturing
Total occupation reported.....	774	88	216	464	108	59	101	538	487	51
Professional, technical, and kindred workers.....	24	2	2	10	3	-	-	11	9	2
Engineers.....	3	-	-	5	1	-	-	2	1	1
Health workers.....	1	-	1	-	-	-	-	1	1	-
Technicians, except health.....	7	1	-	4	2	-	-	5	5	-
Other professional, technical, and kindred workers.....	13	1	1	1	-	-	-	3	2	1
Managers and administrators, except farm.....	34	9	6	24	6	1	2	5	4	1
Manufacturing.....	7	2	1	6	2	-	-	1	-	1
Retail trade.....	3	1	-	5	2	-	-	3	3	-
All other industries....	24	6	5	13	2	1	2	1	1	-
Sales workers.....	12	-	2	3	1	-	-	2	2	-
Manufacturing and wholesale trade.....	-	-	-	1	1	-	-	1	1	-
Retail trade.....	10	-	1	2	-	-	-	1	1	-
All other industries....	2	-	1	-	-	-	-	-	-	-
Clerical and kindred workers.....	640	76	202	11	1	-	1	18	17	1
Bookkeepers.....	53	41	3	-	-	-	-	1	1	-
Secretaries, stenographers, and typists...	187	7	158	1	-	-	-	-	-	-
Craft and kindred workers.....	16	1	-	337	76	43	81	40	35	5
Mechanics and repairers.	5	-	-	83	67	5	3	5	4	1
Metalcraft, except mechanics.....	1	-	-	46	5	37	2	13	12	1
Construction craft.....	-	-	-	77	2	-	71	8	7	1
Operatives, except transport.....	16	-	2	48	9	14	7	413	378	35
Manufacturing.....	14	-	1	40	7	13	6	330	329	1
Nonmanufacturing.....	2	-	1	8	2	1	1	83	49	34
Transport equipment operatives.....	2	-	-	2	2	-	-	3	3	-
Truck drivers.....	-	-	-	-	-	-	-	1	1	-
Other transport equipment operatives.....	2	-	-	2	2	-	-	2	2	-
Laborers, except farm.....	19	-	-	20	4	1	10	40	35	5
Construction laborers...	-	-	-	9	1	-	7	2	-	2
Freight, stock, and material handlers.....	17	-	-	4	1	-	2	21	18	3
Other laborers, except farm.....	2	-	-	7	2	1	1	17	17	-
Service workers, except private household.....	11	-	2	9	6	-	-	6	4	2
Cleaning service workers	3	-	-	7	6	-	-	5	3	2
Food service workers....	4	-	-	-	-	-	-	-	-	-
Health service workers..	1	-	1	-	-	-	-	-	-	-
Personal service workers	2	-	1	1	-	-	-	1	1	-
Protective service workers.....	1	-	-	1	-	-	-	-	-	-

- Represents zero.

Table 3. Occupation Group According to Primary Job Title Reported by Employer and 1970 Census—Continued

(Data shown are number of persons with an entry in the ERC primary job title item)

Employer classification (ERC)	Census classification--Continued										
	Transport equip- ment operatives		Laborers, except farm			Service workers, except private household					
	Total	Truck drivers	Total	Con- struc- tion laborers	Freight, stock, and material handlers	Total	Cleaning service workers	Food service workers	Health service workers	Personal service workers	Protec- tive service workers
Total occupation reported.....	147	74	149	34	64	378	99	131	58	43	47
Professional, technical, and kindred workers.....	1	-	2	1	-	5	-	1	3	1	-
Engineers.....	-	-	1	1	-	-	-	-	-	-	-
Health workers.....	-	-	-	-	-	3	-	-	3	-	-
Technicians, except health.....	-	-	1	-	-	-	-	-	-	-	-
Other professional, technical, and kindred workers.....	1	-	-	-	-	2	-	1	-	1	-
Managers and adminis- trators, except farm.....	2	1	3	-	2	6	2	4	-	-	-
Manufacturing.....	-	-	-	-	-	1	-	1	-	-	-
Retail trade.....	-	-	2	-	1	2	-	2	-	-	-
All other industries....	2	1	1	-	1	3	2	1	-	-	-
Sales workers.....	3	-	1	-	1	4	-	4	-	-	-
Manufacturing and whole- sale trade.....	3	-	-	-	-	-	-	-	-	-	-
Retail trade.....	-	-	1	-	1	4	-	4	-	-	-
All other industries....	-	-	-	-	-	-	-	-	-	-	-
Clerical and kindred workers.....	3	-	14	-	13	8	4	-	2	2	-
Bookkeepers.....	-	-	1	-	1	-	-	-	-	-	-
Secretaries, stenog- raphers, and typists...	-	-	1	-	1	1	-	-	1	-	-
Craft and kindred workers.....	8	6	9	5	-	7	5	1	-	-	1
Mechanics and repairers.	1	1	2	-	-	4	3	-	-	-	1
Metalcraft, except mechanics.....	1	-	-	-	-	-	-	-	-	-	-
Construction craft.....	3	3	5	3	-	2	1	1	-	-	-
Operatives, except transport.....	5	2	26	4	10	7	3	1	-	2	1
Manufacturing.....	4	2	16	2	7	6	2	1	-	2	1
Nonmanufacturing.....	1	-	10	2	3	1	1	-	-	-	-
Transport equipment operatives.....	113	56	4	-	2	2	2	-	-	-	-
Truck drivers.....	58	51	2	-	1	-	-	-	-	-	-
Other transport equip- ment operatives.....	55	5	2	-	1	2	2	-	-	-	-
Laborers, except farm.....	11	9	86	24	35	10	7	2	1	-	-
Construction laborers...	-	-	21	19	1	-	-	-	-	-	-
Freight, stock, and material handlers.....	7	5	32	-	31	3	1	1	1	-	-
Other laborers, except farm.....	4	4	33	5	3	7	6	1	-	-	-
Service workers, except private household.....	1	-	4	-	1	329	76	118	52	38	45
Cleaning service workers	1	-	3	-	1	73	67	3	1	1	1
Food service workers....	-	-	-	-	-	115	1	110	1	3	-
Health service workers..	-	-	-	-	-	55	2	4	49	-	-
Personal service workers	-	-	1	-	-	37	1	1	1	34	-
Protective service workers.....	-	-	-	-	-	49	5	-	-	-	44

- Represents zero.

Table 4. Occupation Group According to Primary Job Description Reported by Employer and 1970 Census

(Data shown are number of persons with an entry in the ERC primary job description item)

Employer classification (ERC)	Census classification										
	Occu- pation reported	Professional, technical, and kindred workers				Managers and adminis- trators, except farm			Sales workers		
		Total	Engi- neers	Health workers	Techni- cians, except health	Total sala- ried	Manufac- turing	Retail trade	Total	Manufac- turing and whole- sale trade	Retail trade
Total occupation reported.....	3,430	589	69	74	57	262	52	60	213	52	112
Professional, technical, and kindred workers.....	555	486	60	55	47	14	3	-	5	3	2
Engineers.....	73	58	50	-	3	4	2	-	1	1	-
Health workers.....	61	55	-	54	-	1	-	-	-	-	-
Technicians, except health.....	66	54	8	1	38	-	-	-	-	-	-
Other professional, technical, and kindred workers.....	355	319	2	-	6	9	1	-	4	2	2
Managers and adminis- trators, except farm.....	310	33	3	2	2	193	36	46	26	8	14
Manufacturing.....	63	10	2	-	1	36	34	-	4	3	-
Retail trade.....	70	3	-	-	1	43	-	42	14	1	13
All other industries....	177	20	1	2	-	114	2	4	8	4	1
Sales workers.....	185	4	1	-	-	11	1	7	148	37	73
Manufacturing and whole- sale trade.....	49	4	1	-	-	2	1	-	38	33	4
Retail trade.....	97	-	-	-	-	6	-	6	76	4	69
All other industries....	39	-	-	-	-	3	-	1	34	-	-
Clerical and kindred workers.....	734	26	-	1	1	25	4	5	16	-	10
Bookkeepers.....	61	3	-	-	-	2	-	1	2	-	2
Secretaries, stenog- graphers, and typists..	183	3	-	1	-	1	-	-	-	-	-
Craft and kindred workers.....	457	13	3	1	5	16	6	2	4	2	2
Mechanics and repairers..	121	5	1	-	4	4	1	1	1	1	-
Metalcraft, except mechanics.....	59	1	-	-	-	-	-	-	1	1	-
Construction craft.....	102	-	-	-	-	3	-	-	1	-	1
Operatives, except transport.....	507	3	1	1	1	2	2	-	2	-	2
Manufacturing.....	403	2	1	1	-	2	2	-	1	-	1
Nonmanufacturing.....	104	1	-	-	1	-	-	-	1	-	1
Transport equipment operatives.....	133	1	1	-	-	-	-	-	2	2	-
Truck drivers.....	62	-	-	-	-	-	-	-	-	-	-
Other transport equip- ment operatives.....	71	1	1	-	-	-	-	-	2	2	-
Laborers, except farm.....	181	4	-	1	-	-	-	-	7	-	7
Construction laborers...	30	-	-	-	-	-	-	-	-	-	-
Freight, stock, and material handlers.....	89	1	-	-	-	-	-	-	4	-	4
Other laborers, except farm.....	62	3	-	1	-	-	-	-	3	-	3
Service workers, except private household.....	368	19	-	13	1	1	-	-	3	-	2
Cleaning service workers	86	-	-	-	-	-	-	-	1	-	-
Food service workers....	125	1	-	-	-	-	-	-	1	-	1
Health service workers..	63	14	-	13	-	-	-	-	-	-	-
Personal service workers	42	4	-	-	1	1	-	-	1	-	1
Protective service workers.....	52	-	-	-	-	-	-	-	-	-	-

- Represents zero.

Table 4. Occupation Group According to Primary Job Description Reported by Employer and 1970 Census—Continued

(Data shown are number of persons with an entry in the ERC primary job description item)

Employer classification (ERC)	Census classification--Continued									
	Clerical and kindred workers			Craft and kindred workers				Operatives, except transport		
	Total	Book-keepers	Secre- taries, stenog- raphers, and typists	Total	Mechanics and repair- ers	Metal- craft, except mechanics	Con- struc- tion craft	Total	Manufac- turing	Non-manufac- turing
Total occupation reported.....	741	84	206	453	108	56	100	527	472	55
Professional, technical, and kindred workers.....	26	3	2	7	1	-	-	10	8	2
Engineers.....	3	-	-	5	1	-	-	2	1	1
Health workers.....	1	-	1	-	-	-	-	1	1	-
Technicians, except health.....	6	1	-	1	-	-	-	4	4	-
Other professional, technical, and kindred workers.....	16	2	1	1	-	-	-	3	2	1
Managers and adminis- trators, except farm.....	28	6	4	20	4	1	1	4	3	1
Manufacturing.....	5	1	-	6	2	-	-	1	-	1
Retail trade.....	3	1	-	2	-	-	-	2	2	-
All other industries....	20	4	4	12	2	1	1	1	1	-
Sales workers.....	10	-	1	2	1	-	-	2	2	-
Manufacturing and whole- sale trade.....	-	-	-	1	1	-	-	1	1	-
Retail trade.....	8	-	-	1	-	-	-	1	1	-
All other industries....	2	-	1	-	-	-	-	-	-	-
Clerical and kindred workers.....	617	74	195	12	1	-	2	17	16	1
Bookkeepers.....	52	39	4	-	-	-	-	1	1	-
Secretaries, stenog- raphers, and typists...	176	8	148	1	-	-	-	-	-	-
Craft and kindred workers.....	16	1	-	346	84	43	82	37	33	4
Mechanics and repairers.	5	-	-	94	76	7	3	5	4	1
Metalcraft, except mechanics.....	1	-	-	44	4	35	2	11	11	-
Construction craft.....	1	-	-	79	3	-	72	8	6	2
Operatives, except transport.....	15	-	2	41	7	12	7	411	372	39
Manufacturing.....	13	-	1	35	5	12	6	330	328	2
Nonmanufacturing.....	2	-	1	6	2	-	1	81	44	37
Transport equipment operatives.....	1	-	-	2	2	-	-	4	3	1
Truck drivers.....	-	-	-	-	-	-	-	1	1	-
Other transport equip- ment operatives.....	1	-	-	2	2	-	-	3	2	1
Laborers, except farm.....	18	-	-	15	4	-	8	36	31	5
Construction laborers...	-	-	-	7	1	-	6	2	-	2
Freight, stock, and material handlers.....	16	-	-	4	1	-	1	21	19	2
Other laborers, except farm.....	2	-	-	4	2	-	1	13	12	1
Service workers, except private household.....	10	-	2	8	4	-	-	6	4	2
Cleaning service workers	2	-	-	5	4	-	-	5	3	2
Food service workers....	4	-	-	1	-	-	-	-	-	-
Health service workers..	1	-	1	-	-	-	-	-	-	-
Personal service workers	2	-	1	1	-	-	-	1	1	-
Protective service workers.....	1	-	-	1	-	-	-	-	-	-

- Represents zero.

Table 4. Occupation Group According to Primary Job Description Reported by Employer and 1970 Census—Continued

(Data shown are number of persons with an entry in the ERC primary job description item)

Employer classification (ERC)	Census classification--Continued										
	Transport equipment operatives		Laborers, except farm			Service workers, except private household					
	Total	Truck drivers	Total	Con- struc- tion laborers	Freight, stock, and material handlers	Total	Cleaning service workers	Food service workers	Health service workers	Personal service workers	Protec- tive service workers
Total occupation reported.....	146	78	141	32	61	358	91	129	52	37	49
Professional, technical, and kindred workers.....	1	-	1	-	-	5	-	1	3	1	-
Engineers.....	-	-	-	-	-	-	-	-	-	-	-
Health workers.....	-	-	-	-	-	3	-	-	3	-	-
Technicians, except health.....	-	-	1	-	-	-	-	-	-	-	-
Other professional, technical, and kindred workers.....	1	-	-	-	-	2	-	1	-	1	-
Managers and adminis- trators, except farm.....	1	-	2	-	1	3	1	2	-	-	-
Manufacturing.....	-	-	-	-	-	1	-	1	-	-	-
Retail trade.....	-	-	2	-	1	1	-	1	-	-	-
All other industries....	1	-	-	-	-	1	1	-	-	-	-
Sales workers.....	3	-	2	-	2	3	-	3	-	-	-
Manufacturing and whole- sale trade.....	2	-	1	-	1	-	-	-	-	-	-
Retail trade.....	1	-	1	-	1	3	-	3	-	-	-
All other industries....	-	-	-	-	-	-	-	-	-	-	-
Clerical and kindred workers.....	2	-	11	-	10	8	4	-	2	2	-
Bookkeepers.....	-	-	1	-	1	-	-	-	-	-	-
Secretaries, stenog- raphers, and typists...	-	-	1	-	1	1	-	-	1	-	-
Craft and kindred workers.....	8	5	9	6	1	8	5	2	-	-	1
Mechanics and repairers.	1	1	2	-	-	4	3	-	-	-	1
Metalcraft, except mechanics.....	1	-	-	-	-	-	-	-	-	-	-
Construction craft.....	3	3	5	4	1	2	1	1	-	-	-
Operatives, except transport.....	3	2	23	2	9	7	3	1	-	2	1
Manufacturing.....	2	2	13	1	6	5	1	1	-	2	1
Nonmanufacturing.....	1	-	10	1	3	2	2	-	-	-	-
Transport equipment operatives.....	117	63	5	-	3	1	1	-	-	-	-
Truck drivers.....	59	54	2	-	1	-	-	-	-	-	-
Other transport equip- ment operatives.....	58	9	3	-	2	1	1	-	-	-	-
Laborers, except farm.....	10	8	84	24	34	7	5	1	1	-	-
Construction laborers...	-	-	21	19	-	-	-	-	-	-	-
Freight, stock, and material handlers.....	7	5	34	-	32	2	1	-	1	-	-
Other laborers, except farm.....	3	3	29	5	2	5	4	1	-	-	-
Service workers, except private household.....	1	-	4	-	1	316	72	119	46	32	47
Cleaning service workers	1	-	3	-	1	69	66	1	-	1	1
Food service workers....	-	-	-	-	-	118	-	115	1	2	-
Health service workers..	-	-	-	-	-	48	1	2	45	-	-
Personal service workers	-	-	1	-	-	31	1	1	-	29	-
Protective service workers.....	-	-	-	-	-	50	4	-	-	-	46

- Represents zero.

Table 5. Major Industry Group According to Employer and 1970 Census

Employer classification (ERC)	Census classification							
	Total employed (this universe)	Mining	Construction	Durable goods manufacturing	Nondurable goods manufacturing	Wholesale trade	Retail trade	Business and repair services
NUMBER								
Total employed.....	2,189	25	169	713	489	181	522	90
Industry not reported.....	153	1	8	45	37	12	46	4
Industry reported.....	2,036	24	161	668	452	169	476	86
Mining.....	25	<u>20</u>	-	2	1	-	1	1
Construction.....	144	-	<u>136</u>	1	1	-	6	-
Durable goods manufacturing.....	663	1	6	<u>618</u>	14	12	8	4
Nondurable goods manufacturing...	442	1	5	19	<u>394</u>	11	7	5
Wholesale trade.....	172	1	2	11	17	<u>118</u>	20	3
Retail trade.....	459	-	3	4	10	20	<u>417</u>	5
Business and repair services.....	68	1	-	2	3	-	1	<u>61</u>
All other industries.....	63	-	9	11	12	8	16	<u>7</u>
PERCENT								
Total employed.....	100.0	1.1	7.7	32.6	22.3	8.3	23.8	4.1
Industry not reported.....	100.0	0.7	5.2	29.4	24.2	7.8	30.1	2.6
Industry reported.....	100.0	1.2	7.9	32.8	22.2	8.3	23.4	4.2
Mining.....	100.0	<u>80.0</u>	-	8.0	4.0	-	4.0	4.0
Construction.....	100.0	-	<u>94.4</u>	0.7	0.7	-	4.2	-
Durable goods manufacturing.....	100.0	0.2	0.9	<u>93.2</u>	2.1	1.8	1.2	0.6
Nondurable goods manufacturing...	100.0	0.2	1.1	4.3	<u>89.1</u>	2.5	1.6	1.1
Wholesale trade.....	100.0	0.6	1.2	6.4	9.9	<u>68.6</u>	11.6	1.7
Retail trade.....	100.0	-	0.7	0.9	2.2	<u>4.4</u>	<u>90.8</u>	1.1
Business and repair services.....	100.0	1.5	-	2.9	4.4	-	1.5	<u>89.7</u>
All other industries.....	100.0	-	14.3	17.5	19.0	12.7	25.4	<u>11.1</u>

- Represents zero.

Table 6. Major Industry Group According to the 1970 Census, Company Name List, and 1970 Census Industry Description

Industry and source	Census classification							
	Total employed (in this universe)	Mining	Construction	Durable goods manufac- turing	Nondurable goods manufac- turing	Wholesale trade	Retail trade	Business and repair services
COMPANY NAME LIST								
Total employed.....	2,189	25	169	713	489	181	522	90
Industry not ascertainable....	917	11	113	212	168	84	271	58
Industry reported.....	1,272	14	56	501	321	97	251	32
Mining.....	18	<u>13</u>	1	1	2	-	1	-
Construction.....	52	-	<u>51</u>	-	-	-	1	-
Durable goods manufacturing.....	497	-	2	<u>479</u>	8	4	2	2
Nondurable goods manufacturing...	319	1	1	9	<u>292</u>	9	5	2
Wholesale trade.....	112	-	-	9	<u>14</u>	<u>77</u>	10	2
Retail trade.....	244	-	1	-	3	7	<u>230</u>	3
Business and repair services.....	23	-	-	1	1	-	-	<u>21</u>
All other industries.....	7	-	-	2	1	-	2	<u>2</u>
CENSUS INDUSTRY DESCRIPTION								
Total employed.....	2,189	25	169	713	489	181	522	90
Industry not ascertainable....	431	5	35	172	85	47	67	20
Industry reported.....	1,758	20	134	541	404	134	455	70
Mining.....	21	<u>18</u>	-	1	1	-	1	-
Construction.....	125	-	<u>119</u>	1	-	1	4	-
Durable goods manufacturing.....	542	-	5	<u>508</u>	9	11	9	-
Nondurable goods manufacturing...	407	1	4	16	<u>371</u>	9	4	2
Wholesale trade.....	119	-	1	5	<u>11</u>	<u>89</u>	12	1
Retail trade.....	448	-	3	3	8	<u>15</u>	<u>415</u>	4
Business and repair services.....	67	1	-	2	1	-	4	<u>59</u>
All other industries.....	29	-	2	5	3	9	6	<u>4</u>

- Represents zero.

Table 7. Indexes—Major Occupation

Employer classification (ERC)	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (ERC)	Net difference rate	95-percent confidence interval for net difference rate
OCCUPATION					
Primary Job Title (Table 1)					
L-fold index.....	25	23.9 to 27.1	(X)	(X)	(X)
Professional, technical, and kindred workers.....	18	15.4 to 20.7	16.5	1.0	0.2 to 1.7
Managers and administrators, except farm.....	37	32.5 to 42.8	9.8	-2.2	-3.0 to -1.4
Sales workers.....	29	24.3 to 35.5	5.2	1.0	0.4 to 1.6
Clerical and kindred workers.....	21	18.7 to 24.0	21.4	*0.4	-0.5 to 1.3
Craft and kindred workers.....	30	26.7 to 34.5	12.7	*0.3	-0.5 to 1.2
Operatives, except transport.....	26	22.7 to 29.5	14.6	*0.5	-0.4 to 1.3
Transport equipment operatives.....	19	14.2 to 25.0	3.6	0.5	0.1 to 0.9
Laborers, except farm.....	53	45.2 to 61.3	5.5	-1.3	-2.1 to -0.6
Service workers, except private household.....	15	12.5 to 18.5	10.8	*-0.1	-0.7 to 0.4
Primary Job Description (Table 2)					
L-fold index.....	24	22.6 to 25.8	(X)	(X)	(X)
Professional, technical, and kindred workers.....	18	15.5 to 21.0	16.2	1.0	0.2 to 1.8
Managers and administrators, except farm.....	35	30.6 to 41.1	9.0	-1.4	-2.2 to -0.6
Sales workers.....	27	22.3 to 33.1	5.4	0.8	0.2 to 1.4
Clerical and kindred workers.....	21	18.3 to 23.7	21.4	*0.2	-0.7 to 1.1
Craft and kindred workers.....	28	24.1 to 31.6	13.3	*-0.1	-1.0 to 0.8
Operatives, except transport.....	24	21.0 to 27.7	14.8	*0.6	-0.3 to 1.4
Transport equipment operatives.....	17	12.5 to 22.6	3.9	*0.4	0.0 to 0.8
Laborers, except farm.....	50	42.7 to 58.9	5.3	-1.2	-1.9 to -0.4
Service workers, except private household.....	14	11.8 to 17.8	10.7	*-0.3	-0.9 to 0.3

* Not significantly different from zero at 95-percent confidence level.

X Not applicable.

Table 8. Indexes—Occupation: Primary Job Title

Employer classification (ERC)	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (ERC)	Net difference rate	95-percent confidence interval for net difference rate
Primary Job Title (Table 1)					
L-fold index.....	37	35.5 to 38.9	(X)	(X)	(X)
Professional, technical, and kindred workers					
Engineers.....	28	20.4 to 37.5	2.3	*-0.1	-0.5 to 0.3
Health workers.....	22	15.5 to 31.6	1.8	0.4	0.1 to 0.7
Technicians, except health.....	43	32.7 to 55.9	2.1	-0.5	-1.0 to -0.1
Other professional, technical, and kindred workers.....	18	14.8 to 21.2	10.3	1.2	0.6 to 1.9
Managers and administrators, except farm					
Manufacturing.....	43	32.4 to 56.7	1.9	*-0.4	-0.8 to 0.0
Retail trade.....	39	29.6 to 50.6	2.4	-0.7	-1.1 to -0.2
All other industries.....	37	30.6 to 43.9	5.6	-1.2	-1.8 to -0.6
Sales workers					
Manufacturing and wholesale trade...	36	26.3 to 50.3	1.4	*0.2	-0.2 to 0.5
Retail trade.....	37	29.4 to 46.4	2.8	*0.5	0.0 to 1.0
All other industries.....	26	16.6 to 39.5	1.0	0.4	0.1 to 0.6
Clerical and kindred workers					
Bookkeepers.....	46	35.6 to 58.2	1.7	0.8	0.3 to 1.3
Secretaries, stenographers, and typists.....	25	20.0 to 30.1	5.5	*0.6	0.0 to 1.1
Other clerical workers.....	37	33.3 to 41.7	14.2	*-1.0	-2.0 to 0.0
Craft and kindred workers					
Mechanics and repairers.....	40	32.0 to 49.4	3.1	*-0.1	-0.6 to 0.5
Metalcraft, except mechanics.....	40	30.0 to 53.4	1.8	*-0.1	-0.5 to 0.3
Construction craft.....	30	23.0 to 38.8	2.8	*0.1	-0.4 to 0.5
Other craft workers.....	37	30.6 to 43.5	5.1	*0.5	-0.2 to 1.1
Operatives, except transport:					
Manufacturing.....	31	27.1 to 35.1	11.6	2.0	1.2 to 2.9
Nonmanufacturing.....	58	47.1 to 71.7	3.0	-1.6	-2.1 to -1.0
Transport equipment operatives					
Truck drivers.....	25	17.6 to 35.2	1.7	*0.4	0.0 to 0.7
Other transport equipment operatives	30	21.7 to 40.5	1.9	*0.1	-0.2 to 0.5
Laborers, except farm					
Construction laborers.....	43	29.4 to 62.4	0.9	*0.1	-0.3 to 0.4
Freight, stock, and material handlers.....	61	49.3 to 74.9	2.5	-0.7	-1.2 to -0.2
Other laborers, except farm.....	63	50.4 to 78.6	2.1	-0.7	-1.3 to -0.3
Service workers, except private household					
Cleaning service workers.....	31	23.9 to 40.3	2.6	*0.2	-0.3 to 0.6
Food service workers.....	13	9.3 to 18.7	3.4	*0.3	0.0 to 0.6
Health service workers.....	24	16.6 to 34.3	2.0	*-0.3	-0.7 to 0.0
Personal service workers.....	26	16.9 to 38.7	1.4	*-0.1	-0.4 to 0.1
Protective service workers.....	10	5.6 to 19.3	1.4	*-0.1	-0.3 to 0.1

* Not significantly different from zero at 95-percent confidence level.

X Not applicable.

Table 9. Indexes—Occupation: Primary Job Description

Employer classification (ERC)	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (ERC)	Net difference rate	95-percent confidence interval for net difference rate
Primary Job Description (Table 2)					
L-fold index.....	36	34.4 to 37.8	(X)	(X)	(X)
Professional, technical, and kindred workers					
Engineers.....	30	22.2 to 41.1	2.1	*-0.1	-0.5 to 0.3
Health workers.....	20	13.9 to 29.9	1.8	0.4	0.1 to 0.7
Technicians, except health.....	39	29.1 to 52.0	1.9	-0.3	-0.7 to 0.1
Other professional, technical, and kindred workers.....	18	15.4 to 22.0	10.4	1.0	0.3 to 1.6
Managers and administrators, except farm					
Manufacturing.....	42	31.1 to 55.6	1.8	*-0.3	-0.7 to 0.1
Retail trade.....	36	26.9 to 48.4	2.0	*-0.3	-0.7 to 0.1
All other industries.....	36	29.5 to 43.1	5.2	-0.8	-1.4 to -0.2
Sales workers					
Manufacturing and wholesale trade...	35	25.1 to 49.2	1.4	*0.1	-0.3 to 0.4
Retail trade.....	35	27.7 to 44.4	2.8	*0.4	-0.1 to 0.9
All other industries.....	23	14.8 to 35.9	1.1	*0.3	0.0 to 0.6
Clerical and kindred workers					
Bookkeepers.....	47	37.0 to 60.2	1.8	0.7	0.2 to 1.2
Secretaries, stenographers, and typists.....	25	20.6 to 31.2	5.3	0.7	0.1 to 1.2
Other clerical workers.....	37	33.3 to 41.9	14.3	-1.1	-2.2 to -0.1
Craft and kindred workers					
Mechanics and repairers.....	35	27.7 to 43.7	3.5	*-0.4	-0.9 to 0.1
Metalcraft, except mechanics.....	40	29.6 to 53.6	1.7	*-0.1	-0.5 to 0.3
Construction craft.....	30	22.8 to 38.4	3.0	*-0.1	-0.5 to 0.4
Other craft workers.....	35	29.0 to 41.8	5.1	*0.4	-0.2 to 1.1
Operatives, except transport					
Manufacturing.....	34	29.9 to 38.4	11.7	2.0	1.1 to 3.0
Nonmanufacturing.....	55	44.0 to 67.8	3.0	-1.4	-2.0 to -0.9
Transport equipment operatives					
Truck drivers.....	23	16.4 to 33.2	1.8	0.5	0.1 to 0.8
Other transport equipment operatives	30	22.1 to 41.1	2.1	*-0.1	-0.5 to 0.3
Laborers, except farm					
Construction laborers.....	39	26.0 to 58.6	0.9	*0.1	-0.2 to 0.4
Freight, stock, and material handlers.....	59	47.2 to 72.6	2.6	-0.8	-1.4 to -0.3
Other laborers, except farm.....	61	47.7 to 77.9	1.8	*-0.4	-0.9 to 0.1
Service workers, except private household					
Cleaning service workers.....	26	19.4 to 35.1	2.5	*0.2	-0.3 to 0.5
Food service workers.....	10	6.5 to 14.7	3.6	*0.1	-0.2 to 0.4
Health service workers.....	22	14.9 to 32.9	1.8	*-0.3	-0.6 to 0.0
Personal service workers.....	27	17.4 to 41.5	1.2	*-0.2	-0.4 to 0.1
Protective service workers.....	9	4.7 to 17.4	1.5	*-0.1	-0.3 to 0.1

* Not significantly different from zero at 95-percent confidence level.

X Not applicable.

Table 10. Indexes—Major Industry

Employer classification (ERC)	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (ERC)	Net difference rate	95-percent confidence interval for net difference rate
INDUSTRY REPORTED					
L-fold index.....	17	15.4 to 19.2	(X)	(X)	(X)
Mining.....	19	9.7 to 35.8	1.2	*-0.1	-0.4 to 0.3
Construction.....	12	8.3 to 16.5	7.1	0.8	0.3 to 1.4
Durable goods manufacturing.....	11	8.6 to 13.0	32.6	*0.3	-0.7 to 1.2
Nondurable goods manufacturing.....	15	12.5 to 18.4	21.7	*0.5	-0.5 to 1.5
Wholesale trade.....	34	27.7 to 40.8	8.5	*-0.2	-1.2 to 0.9
Retail trade.....	14	11.5 to 17.1	22.5	*0.8	-0.2 to 1.8
Business and repair services.....	22	15.2 to 30.7	3.3	0.9	0.3 to 1.5
All other industries.....	(S)	(S)	3.1	(S)	(S)

* Not significantly different from zero at 95-percent confidence interval.

X Not applicable.

S Does not meet publication standards.

Table 11. Indexes—Major Industry Group According to the 1970 Census, Company Name List, and 1970 Census Industry Description

Industry and source	Index of inconsistency	95-percent confidence interval for index of inconsistency	Percent in class (CNL/33b)	Net difference rate	95-percent confidence interval for net difference rate
COMPANY NAME LIST					
Industry reported					
L-fold index.....	12	9.6 to 14.1	(X)	(X)	(X)
Mining.....	(S)	(S)	1.4	(S)	(S)
Construction.....	6	2.6 to 12.9	4.1	*0.3	-0.1 to 0.7
Durable goods manufacturing.....	7	4.8 to 9.0	39.1	*0.3	-0.7 to 1.3
Nondurable goods manufacturing.....	12	9.0 to 15.3	25.1	*0.2	-1.0 to 1.3
Wholesale trade.....	29	21.9 to 37.5	8.8	*-1.2	-2.4 to 0.0
Retail trade.....	9	6.3 to 12.3	19.2	*0.6	-0.4 to 1.5
Business and repair services.....	24	14.0 to 41.8	1.8	0.7	0.1 to 1.3
All other industries.....	(S)	(S)	0.6	(S)	(S)
CENSUS INDUSTRY DESCRIPTION (ITEM 33b)					
Industry reported					
L-fold index.....	13	11.4 to 15.2	(X)	(X)	(X)
Mining.....	12	5.2 to 29.4	1.2	*-0.1	-0.3 to 0.2
Construction.....	9	5.7 to 13.5	7.1	*0.5	0.0 to 1.1
Durable goods manufacturing.....	9	7.0 to 11.4	30.8	*-0.1	-1.0 to 0.9
Nondurable goods manufacturing.....	11	8.7 to 14.1	23.2	*-0.2	-1.0 to 0.8
Wholesale trade.....	32	25.4 to 40.2	6.8	*0.9	-0.1 to 1.9
Retail trade.....	11	8.6 to 13.7	25.5	*0.4	-0.6 to 1.4
Business and repair services.....	14	9.2 to 22.7	3.8	*0.2	-0.3 to 0.7
All other industries.....	(S)	(S)	1.7	(S)	(S)

* Not significantly different from zero at 95-percent confidence interval.

X Not applicable.

S Does not meet publication standards.

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Appendixes

Appendix A. Forms Used in the Employer Record Check Study

FORM D-921 (12-15-70)

O.M.B. NO. 41-570073
APPROVAL EXPIRES JUNE 30, 1971



U.S. DEPARTMENT OF COMMERCE
Bureau of the Census
Washington, O.C. 20233

OFFICE OF THE DIRECTOR

Dear Sir:

The Bureau of the Census regularly collects occupational and industrial information on the Nation's labor force. This information, presented in the form of statistical summaries, is used by private industry, labor, and government in making many important decisions. Location of new business and industrial sites, establishment of manpower training programs, and guidance in career selection are a few areas which depend greatly on the accuracy and timeliness of the Census Bureau's occupational and industrial data.

In a continuing effort to improve the quality of our data collection methods, we are asking a small sample of employers throughout the Nation to report specific job titles, job descriptions, and business activities in order to permit us to compare them with corresponding information collected in household surveys.

If the person named in item 1 of this form was employed by your firm during the first half of 1970, please complete items 2 through 4. Make the job description as complete as possible. The following example of a job title and job description will provide some indication of the type of entries which we would like to have reported.

Job title according to company records: Engineer 1

Job description: Designs and supervises construction and
operation of facilities for transmitting
electrical power. Prepares specifications
and estimates costs of construction.

If the person listed in item 1 of this form was not on your payroll at any time during the first half of 1970, please enter "Not with firm" in place of job title in item 2.

Please return the form in the enclosed, preaddressed, postage-paid envelope.

The information you report will be kept confidential and will be used only in statistical tabulations along with information reported by other firms. Your cooperation in this study is greatly appreciated.

Sincerely,

A handwritten signature in cursive script, reading "George H. Brown".

GEORGE H. BROWN
Director
Bureau of the Census

Enclosure

NOTES

PLEASE COMPLETE FORM ON REVERSE SIDE

EMPLOYER QUESTIONNAIRE

NOTICE — Your report to the Census Bureau is confidential by law (Title 13, U.S. Code). It may be seen only by sworn Census employees and may be used only for statistical purposes. The law also provides that copies retained in your files are immune from legal process.

CENSUS USE

1. EMPLOYEE IDENTIFICATION

If this person was an employee of your firm at any time during the first half of 1970 (January — June), please provide the information requested in items 2 through 4.

INSERT EMPLOYEE LABEL HERE

2. OCCUPATION INFORMATION

Please give title of employee's job during the first half of 1970. Also, describe the duties and activities performed by the employee. If he changed jobs during the period, please give title and description of each job. Use the notes space on the reverse if necessary.

Job title (from company records)

Job description

Job title of second job (if applicable)

Job description of second job

3. PLACE OF WORK

Where did this employee report to work during the first half of 1970? If he was assigned to more than one location, enter where he worked most of the time and mark (X) this box. →

Street name and number

City, town, or borough

Within city limits of this place?

☐ Yes☐ No

County

State

4. BUSINESS ACTIVITY

Answer items A through C below, with regard to the establishment at which the above employee worked during the first half of 1970. If the employee worked at more than one establishment during this period, describe the activity of the establishment at which he worked most of the time.

A. Employer Identification (EI) Number

If this establishment has an Employer Identification (EI) Number, enter the present 9-digit number used on your current Employer's Quarterly Tax Return, Treasury Form 941. →

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B. Major Activity

Mark (X) the one box which best describes the major activity of this establishment.

☐ Mining☐ Construction☐ Manufacturer's sales branch, sales office☐ Manufacturer's central office or auxiliary place serving establishments of the company☐ Manufacturing☐ Transportation, communication or other public utility☐ Wholesale trade☐ Retail trade☐ Finance, insurance, or real estate☐ Hotel or motel☐ Laundering, dry cleaning or other garment service place☐ Hospital☐ Elementary or secondary school☐ Engineering or architectural service☐ Other — Specify →

C. Principle Products or Service

List in order of importance the principle products mined or made, lines of merchandise sold, kind of construction done, or type of service rendered.

CENSUS USE

1
2
3
4

WORKSHEET AND CONTROL FORM FOR SCHEDULES ONLY

EMPLOYER RECORD CHECK STUDY (E12)

19th Decennial Census - 1970

Section I - SELECTION REQUIREMENTS		Section II - SAMPLE PERSON'S INFORMATION		Section IV - EMPLOYER'S MAILING ADDRESS (Company Address List or other source)	
<p>MUST HAVE -</p> <p>1. "Yes" in 29a - OR -</p> <p>A. 2. Entry in 29b - OR -</p> <p>3. "Yes, on vac., etc." in 30</p> <p>AND</p> <p>B. Entry in 33a</p> <p>MUST NOT HAVE -</p> <p>A. Entry of farmer, farm worker, farm manager, farm laborer, farm foreman, or private household worker in 34a, b, or c;</p> <p>- NOR -</p> <p>B. Entry of "Self-employed-own business" or "without pay in . . . farm" in item 35.</p>	1. Person's name			1. Company's name	
	2. Company's name (33a)			2. P.O. Box No.	
	3. Kind of business (33b)			3. Street No. and name	
	4. Kind of work (34a)			4. City, town, county, etc.	
	5. Class of worker (35)	<input type="checkbox"/> Private <input type="checkbox"/> Govt. <input type="checkbox"/> Self-empl. bus., inc. ADDRESS CITY, ETC.		5. State and ZIP code	
	6. Where he worked (29c)			Section V - OFFICE CONTROL	
	7. Person's address (Census label or Item 7b on CPS Control Card.)				
Section III - IDENTIFICATION INFORMATION		Section V - OFFICE CONTROL		Section IV - EMPLOYER'S MAILING ADDRESS	
CENSUS SCHEDULE	1. Line No. (pg. 2)	2. Sex	1. Final sample selection		<input type="checkbox"/> Yes <input type="checkbox"/> No
	3. Race <input type="checkbox"/> W <input type="checkbox"/> N <input type="checkbox"/> Ot	4. Serial No. (o5)	2. Questionnaire prepared		DATE
BREAKER SHEET	5. State code	6. County code	3. Questionnaire sent		DATE
	7. ED No.		4. Questionnaire returned		FIRST CUTOFF <input type="checkbox"/> Yes <input type="checkbox"/> No -Send follow-up letter FINAL CUTOFF <input type="checkbox"/> Yes <input type="checkbox"/> No
CPS CONTROL CARD	8. Household No. (3)	9. Sample (5)	5. Industry code assigned		
	10. Control No. (6)	11. Line No. (13)	a. From Company Name List		<input type="checkbox"/> Yes <input type="checkbox"/> No
			b. Other source		SPECIFY
				DATE OCCUPATION CODED	
				DATE QUESTIONNAIRE SENT TO SYSTEMS DIV.	

Appendix B. 1970 CPS-Census Match Study Methods and Design

The CPS-Census Match study compared characteristics for identical persons as recorded in the 1970 Census of Population and in the March 1970 Current Population Survey (CPS). The March 1970 CPS was used as the source of CPS data since many items (e.g., work experience, income) were available only from the March CPS file. To accomplish the match, the following operations were undertaken. A 1970 census geographic identification (i.e., enumeration district or ED) was assigned to each housing unit in the March 1970 CPS, and the appropriate census address register was searched for the unit. If an address match was made to a census unit listed as being enumerated on a 100-percent (short form) questionnaire, the CPS unit was considered matched and was dropped from the scope of this study. This was done since most of the items examined in this study were collected only for persons in the 15- or 5-percent samples of the population census. If the CPS unit's address was matched to the address of a census household enumerated on a sample questionnaire, the census questionnaire for that unit was obtained and a name match was performed. For any unit not matched in either the address register search or the

questionnaire search, attempts were made through clerical review of the assignment of census ED and/or through field reconciliation to obtain corrected geographic or other information for the unit.

For each CPS unit matched to a census 15- or 5-percent questionnaire, selected CPS and census identification information on the household and persons therein was transcribed to a specially designed, machine-readable control sheet. All transcription work was subjected to a visual review. The information on the control sheets was then transferred to computer tape. This control tape was first matched against the March 1970 CPS data file, and the records for persons included in the study were obtained from the CPS file. Then, the control tape was matched with the edited detail file of the census sample, and the records for the appropriate persons were obtained. The CPS and census records for each person were merged and the resultant data tape was used in the creation of the analytic tabulations shown in that report.

Appendix C. Computation of Response Error Measures and Their 95-Percent Confidence Intervals

(This section presents, with examples, the computational forms of the response error measures used in this report)

DISPLAY OF CROSS-TABULATED DATA														
General procedure								Example of procedure						
Display of cross-tabulated data for characteristic with L categories ($L \geq 2$). The general term x_{ij} represents the number of unweighted sample elements in the i th category in the ERC and j th category in the census.								Relationship to household head (artificial data)						
ERC ($i=1, \dots, L$)	Census ($j=1, \dots, L$)							ERC	Census					
	Total	Category 1	Category 2	...	Category j	...	Category L		Total persons	Head of household	Wife of head	Child	Other relative	Non relative
Total	$n..$	$x_{.1}$	$x_{.2}$	...	$x_{.j}$	...	$x_{.L}$	Total persons	8,000	2,400	2,000	3,100	450	50
Category 1	$x_{1.}$	x_{11}	x_{12}	...	x_{1j}	...	x_{1L}	Head of household	2,300	<u>2,250</u>	40	10	-	-
Category 2	$x_{2.}$	x_{21}	x_{22}	...	x_{2j}	...	x_{2L}	Wife of head	2,100	60	<u>1,900</u>	120	20	-
.	.	.	.	...	.	...	.	Child	3,000	40	20	<u>2,900</u>	30	10
Category i	$x_{i.}$	x_{i1}	x_{i2}	...	x_{ij}	...	x_{iL}	Other relative	500	40	30	30	<u>400</u>	-
.	.	.	.	...	.	...	.	Nonrelative	100	10	10	40	-	<u>40</u>
Category L	$x_{L.}$	x_{L1}	x_{L2}	...	x_{Lj}	...	x_{LL}							

COMPUTING NET DIFFERENCE RATE

Net difference rate for category i:

$$\bar{e}_i = \frac{X_{.i} - X_{i..}}{n_{..}} \times (100), \quad (i=1, \dots, L)$$

Net difference rate, head of household:

$$\bar{e}_i = \left(\frac{2,400 - 2,300}{8,000} \right) = \left(\frac{100}{8,000} \right) \times (100) = 1.2$$

COMPUTING NET SHIFT RATE

Net shift rate for category i:

$$\frac{\bar{e}_i}{P_{i.}} = \frac{\left(\frac{X_{.i} - X_{i..}}{n_{..}} \right) \times (100)}{\left(\frac{X_{i..}}{n_{..}} \right)} \quad (i=1, \dots, L)$$

Net shift rate, head of household:

$$\frac{\bar{e}_i}{P_{i.}} = \frac{\left(\frac{2,400 - 2,300}{8,000} \right)}{\left(\frac{2,300}{8,000} \right)} \times (100) = \frac{1.25}{\left(\frac{2,300}{8,000} \right)} = 4.4$$

COMPUTING INDEX OF INCONSISTENCY

Index of inconsistency for category i:

$$\hat{I}_i = \frac{(X_{.i} + X_{i..} - 2X_{ii})}{\frac{1}{n_{..}} \left[\sum_{j=1}^L (X_{.j} - X_{i..}) + X_{i..} (n_{..} - X_{i..}) \right]} \times (100) \quad (i=1, \dots, L)$$

Index of inconsistency, head of household:

$$\begin{aligned} \hat{I}_i &= \frac{(2,400 + 2,300 - 2(2,250))}{\frac{1}{8,000} \left[(2,400)(8,000 - 2,300) + (2,300)(8,000 - 2,400) \right]} \times (100) \\ &= \frac{(200)(8,000)}{(2,400)(5,700) + (2,300)(5,600)} \times (100) \\ &= \left(\frac{1,600,000}{26,560,000} \right) \times (100) = 6.0 \end{aligned}$$

NOTE: X_{ii} is on diagonal term.

L-fold index of inconsistency:

$$\hat{I}_{I_L} = \frac{\left(\frac{1}{n_{..} - \sum_{i=1}^L X_{ii}} \right)}{\left(\frac{1}{n_{..} - \sum_{i=1}^L X_{ii}} \right)} \times (100)$$

L-fold index of inconsistency, relationship to head:

$$\begin{aligned} \hat{I}_{I_L} &= \frac{(8,000) - (2,250 + 1,900 + 2,900 + 400 + 40)}{(8,000) - \frac{1}{8,000} \left[(2,400)(2,300) + (2,000)(2,100) + (3,100)(3,000) + (450)(500) + (50)(100) \right]} \times (100) \\ &= \left(\frac{8,000 - 7,490}{8,000 - 2406.25} \right) \times (100) = \left(\frac{510}{5,593.75} \right) \times (100) = 9.1 \end{aligned}$$

COMPUTING 95-PERCENT CONFIDENCE INTERVALS

95-percent confidence interval of net difference rate for category i: (i=1, ..., L)

95-percent confidence limits are

$$\frac{(X_{.i} - X_{i.}) + 2\sqrt{X_{.i} + X_{i.} - 2X_{ii}} + 1}{2/n_{..} \times (100)} \times (100)$$

n..

Exceptions

- If $(X_{.i} - X_{ii}) = 0$, then widen the high 95-percent confidence limit by adding $2/n_{..} \times (100)$
- If $(X_{.i} - X_{ii}) = 0$, then widen the low 95-percent confidence limit by subtracting $2/n_{..} \times (100)$
- If both a and b above, the 95-percent confidence limits are estimated as $\frac{-4 \times (100)}{n_{..}} \times (100)$

95-percent confidence interval of index of inconsistency for category i: (i=1, ..., L)

$$1. \text{ If } \frac{X_{.i} + X_{i.} - 2X_{ii}}{n_{..}} \leq .10,$$

95-percent confidence limits are

$$\frac{(X_{.i} + X_{i.} - 2X_{ii} + 2) \pm \sqrt{X_{.i} + X_{i.} - 2X_{ii}} + 1}{X_{.i}(1 - \frac{X_{.i}}{n_{..}}) + X_{i.}(1 - \frac{X_{i.}}{n_{..}})} \times (100)$$

$$2. \text{ If } \frac{X_{.i} + X_{i.} - 2X_{ii}}{n_{..}} > .10,$$

95-percent confidence limits are

$$\frac{(X_{.i} + X_{i.} - 2X_{ii} + 2) \pm \sqrt{\frac{1}{n_{..}}(X_{.i} + X_{i.} - 2X_{ii})(n_{..} - X_{.i} - X_{i.} + 2X_{ii})}}{X_{.i}(1 - \frac{X_{.i}}{n_{..}}) + X_{i.}(1 - \frac{X_{i.}}{n_{..}})} \times (100)$$

95-percent confidence interval of net difference rate for head of household:

1. Low 95-percent confidence limit is

$$\frac{(2,400 - 2,300) - 2\sqrt{2,400 + 2,300 - 2(2,250)} + 1}{8,000} \times (100)$$

$$= \frac{(100) - 2\sqrt{201}}{8,000} \times (100) = \frac{71.7}{8,000} \times (100) = 0.9$$

2. High 95-percent confidence limit is

$$\frac{(2,400 - 2,300) + 2\sqrt{2,400 + 2,300 - 2(2,250)} + 1}{8,000} \times (100)$$

$$= \frac{100 + 2\sqrt{201}}{8,000} = \frac{128.3}{8,000} \times (100) = 1.6$$

95-percent confidence interval of index of inconsistency for head of household:

$$\frac{2,400 + 2,300 - 2(2,250)}{8,000} = .025$$

Low 95-percent confidence limit is

$$\frac{2,400 + 2,300 - 2(2,250) + 2 - 2\sqrt{2,400 + 2,300 - 2(2,250)} + 1}{(2,400)(1 - \frac{2,300}{8,000}) + 2,300(1 - \frac{2,400}{8,000})} \times (100)$$

$$= \frac{(202 - 2\sqrt{201}) \times (100)}{(2,400)(.7125) + (2,300)(.7)} = \frac{173.7}{3,320} \times (100) = 5.2$$

High 95-percent confidence limit is

$$\frac{(202 + 2\sqrt{201}) \times (100)}{(2,400)(.7125) + (2,300)(.7)} = \frac{230.3}{3,320} \times (100) = 6.9$$

COMPUTING 95-PERCENT CONFIDENCE INTERVALS--Continued

95-percent confidence interval for L-fold index of inconsistency

$$1. \text{ If } \left(\frac{n_{..} - \sum_{i=1}^L X_{ii}}{n_{..}} \right) \leq .10$$

95-percent confidence limits are

$$\left(\frac{n_{..} - \sum_{i=1}^L X_{ii} + 2}{n_{..}} \right) \sqrt{\frac{\sum_{i=1}^L X_{ii} + 1}{n_{..}}} \quad \times (100)$$

$$2. \text{ If } \left(\frac{n_{..} - \sum_{i=1}^L X_{ii}}{n_{..}} \right) > .10$$

95-percent confidence limits are

$$\left(\frac{n_{..} - \sum_{i=1}^L X_{ii} + 2}{n_{..}} \right) \sqrt{\frac{\sum_{i=1}^L X_{ii} + 1}{n_{..}}} \quad \times (100)$$

95-percent confidence interval of L-fold index of inconsistency for relationship to head of household:

$$\frac{8,000 - (2,250 + 1,900 + 2,900 + 400 + 40)}{8,000} = \frac{510}{8,000} = .064$$

Low 95-percent confidence limit is

$$\frac{(510 + 2) - 2\sqrt{510 + 1}}{8,000 - \frac{1}{8,000} (2,400)(2,300) + (2,000)(2,100) + (3,100)(3,000) + (500)(500) + (50)(100)} \times (100)$$

$$= \frac{512 - 2(22.6)}{78,000 - 2406.25} \times (100) = \frac{466.8}{5593.75} \times (100) = 8.3$$

High 95-percent confidence limit is

$$\frac{512 + 2(22.6)}{78,000 - 2406.25} \times (100) = \frac{557.2}{5593.75} \times (100) = 10.0$$

Appendix D. Standard Errors for Occupation and Industry

The reliability of an estimated percentage, computed by using sample data for both numerator and denominator, depends upon both the size of the percentage and the number of matched sample persons upon which the percentage is based. Estimated percentages are relatively more reliable than the corresponding estimates of the numerators of the percentages, particularly if the percentages are 50 percent or more. For percentages and/or sample sizes not shown in the standard error table, linear interpolation will provide reasonably accurate estimates of the standard error.

Illustration: Table 2 of this report indicates that of the 349 matched sample persons that were classified by primary job title as managers in the ERC, 58.5 percent of them were in the same category in the census. The standard error table shows that the standard error of 58.5 percent on a base of 349 is approximately 4.2 percentage points. Consequently, chances are about 68 out of 100 that the estimated 58.5 percent would be within 4.2 percentage points of the average result of all possible repetitions of this study, and about 95 out of 100 that the estimate would be within 8.4 percentage points of this figure; i.e., the 95-percent confidence interval would range between 50.1 and 66.9 percent.

Standard Errors of Estimated Percentages, Major Occupation and Industry Group

(68 chances out of 100)

Estimated percentage	Base of estimated percentage											
	50	100	150	200	250	300	400	500	600	800	2000	3500
2 or 98.....	3.1	2.2	1.8	1.6	1.4	1.3	1.1	1.0	0.9	0.8	0.5	0.4
5 or 95.....	4.9	3.4	2.8	2.4	2.2	2.0	1.7	1.5	1.4	1.2	0.8	0.6
10 or 90.....	6.7	4.7	3.9	3.4	3.0	2.7	2.4	2.1	1.9	1.7	1.1	0.8
15 or 85.....	8.0	5.6	4.6	4.0	3.6	3.3	2.8	2.5	2.3	2.0	1.3	1.0
25 or 75.....	9.7	6.8	5.6	4.8	4.3	4.0	3.4	3.1	2.8	2.4	1.5	1.2
35 or 65.....	10.7	7.5	6.2	5.3	4.8	4.4	3.8	3.4	3.1	2.7	1.7	1.3
50.....	11.2	7.9	6.5	5.6	5.0	4.6	4.0	3.5	3.2	2.8	1.8	1.3

1970 Census of
Population and Housing
Wash, D.C. MD. and VA.

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